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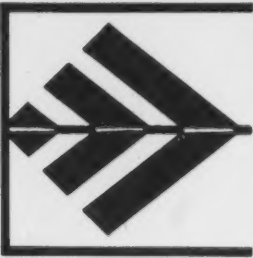
ABSTRACT

Originating from a manual prepared for a UNESCO workshop, this handbook addresses concepts, approaches, and methods required for planning and management of education at the microlevel. Part I introduces microplanning and management as an important component of overall development efforts, concentrating on education. Chapter 1 describes the necessity of decentralization and relegating planning of elementary and secondary education to the local community. Chapter 2 describes the planning process, and chapter 3 reviews key elements of microlevel planning and management. Part II has eight chapters that discuss microplanning techniques, including needs assessment, data gathering and analytical techniques, school mapping, location planning, facilities planning, interinstitutional coordination and networking, preparation of project operation plans, and project formulation and management. Part III focuses on the microlevel management processes, including management of implementation, personnel management, staff development and professionalization, management of committees and groups, and communication. Part IV treats financial management, and part V covers community support and participation. The final part discusses monitoring and evaluation processes, stressing the importance of corrective mechanisms and management information systems. (18 references) (MLH)

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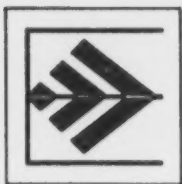
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HANDBOOK

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Preface

With recent global accent on human resources development and education for all, the 1990s will be a decade during which substantial efforts will be made to further improve and diversify education. There are evidences indicating that a priority thrust will be to strengthen the implementation of educational plans and projects, particularly in terms of efficiency and effectiveness. There is the consensus that this depends critically on the competence and efforts of educational planner and managers at decentralized levels.

In response to the expressed need, the UNESCO Principal Regional Office for Asia and the Pacific organized in 1985 in co-operation with the National Institute of Educational Planning and Administration (NIEPA) of India, a first Regional Workshop on Micro-Level Educational Planning and Management. An idea emerged during the workshop for UNESCO to prepare and disseminate a model handbook on the subject, for reference and use by the countries in the training of local education officers.

Consequently, an expert group (see list of contributors on the next page) was formed in 1986 and met to work on compiling such a model handbook, of which the first version appeared in the same year, entitled: "Micro-level educational planning and management - A reference and training manual (Version I)". This manual was distributed to well-known specialists on related subjects, and field-tested in a number of countries to gather comments and suggestions for improvement.

Based on the comments, the manual was revised to produce the present handbook. The volume has been completely overhauled and presents the materials in twenty-five chapters organized into six parts. It addresses itself in particular to concepts, approaches, methods and techniques required for planning and management of education at the micro level.

The state of the art of micro-level planning and management being practised in the countries, although known to be very rich, is not all that well documented. This Handbook symbolizes an initial albeit limited attempt in redressing this deficiency.

The preparation of any handbook which has to draw upon a variety of experiments spread across various socio-cultural-linguistic groups in different countries is obviously an extremely difficult and time-consuming task. It is hoped that the ideas and approaches embodied in this volume could be tested in application to generate salient feedback information for further improvements.

It is felt that the present practice of micro-level educational planning and management is still in a nascent stage, though being stipulated for large scale replication in the years to come; and the existing documentation is patchy and extremely limited. Unlike in the situations where the manuals document the events *ex post facto*, these two basic factors have precluded the production of a more finished and pre-set version of the Handbook at this stage. But, then, probably therein lies the message of micro-level educational planning and management - that it cannot be done entirely on a *priori* basis and in a vacuum.

As more and more facts from the field continue to pour in, it is hoped that the volume would grow and become rich. In that sense, the manual is a handbook still in making and would perhaps always remain so. In the wake of inexorable changes and their rapid pace, one wonders whether it is a precursor to the type of volumes likely to come in future.

The volume was co-ordinated by the Educational Planning and Management Service of Unesco PROAP which takes pleasure in expressing its deep appreciation to all those who have contributed to this

volume. Special thanks are due to Dr. Judith Chapman, Dr. Brahm Prakash and Mr. S.K. Chu for having so thoroughly revised and edited the chapters.

Unesco welcomes all suggestions for further improvement of the Handbook as well as description of concrete experiences related to specific issues in micro-planning. These will be incorporated in the production in the not too far future of a new and better edition. Suggestions may be sent to :

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Part I

The Context for MLPM

This is a brief introduction to micro-level planning and management (MLPM). It provides a general description about the concept of MLPM and how it came to be seen as an important component of overall efforts of development, particularly in the social service areas of education, health, nutrition, drinking water and housing. The focus here of course is confined to education only.

Chapter 1 describes the necessity of decentralization and relegating the planning and management of education, particularly of elementary and school education, to the local communities, people's organizations, and local administration within the overall framework of national educational priorities and goals.

Planning process is explained in a simple and rudimentary manner in Chapter 2 to apprise one of the general steps that it may take. The emphasis sought to be laid is on conceiving planning as a process which keeps on evolving as the implementation proceeds. Even though it begins with an initial pattern, it continues to change throughout till the final evaluation.

Finally, Chapter 3 presents a comprehensive overview of MLPM. Key elements which are likely to be involved in a micro planning exercise are discussed. Different facets which are vital for the exercise, and hence are required to be kept in view, are briefly highlighted.

Micro Level Educational Planning and Management an Introduction

1.1 Planning: types and their concerns

Planning implies chalking out a direction for future actions to achieve pre-determined objectives through the optimum use of available resources. A planning exercise can be attempted at different levels: macro, meso, micro and institutional. At the *macro* level, the unit of planning can be a nation or a state or an autonomous region, while at the *meso* level it can be a province consisting of a number of districts. At the *micro* level the educational planning is extended to a district, county, block or a village. At the *institutional* level the educational planning relates to the specific institution or school. The essential point, however, for the purpose of this manual is that micro level planning is an extension of the planning process towards the grassroot level¹.

It is important to note however that micro-level educational planning operates within the framework of *multi-level planning*. This is because the functions of different types of planning and its multiple facets are mutually complementary - each one nested in the other and performing its particular role. For example, macro level planning may concern itself with the targets and priorities at the federal/provincial government levels. Micro level planning may modify these targets and priorities in view of the local social, cultural and economic conditions. In this sense, planning needs to be viewed as a comprehensive, modular and interactive process and not as a homogenous monolithic block. It is of course assumed that the mutual inter-relationships among different plans are inherently empathic and that the segments do not operate at cross purposes.

1.2 Antecedents of micro-level educational planning and management

In the early days of development, maintaining law and order, or collecting revenue were the main functions of a government. Today, the functions of government are far more diverse. National governments now play a dominant role in the economic and social development of their countries. As such the span of control of governments has substantially increased. Governments now develop policies for all major sectors and mobilize resources to implement these policies. They plan public sector undertakings, stimulate private investment, promote agricultural and industrial modernization, provide a wide range of health, educational and social welfare services, direct the course of economic development, and effect social transformation. In short, these excursions into development activities have increased the degree of control the national governments have over development planning and management.

1 Prakash, Brahm and K.G. Virmani. *Micro-level Educational Planning and Management*. A paper presented to the Unesco-ROEAP Workshop - Micro-level Educational Planning and Management. New Delhi, 1985.

Also see: *Micro-level Educational Planning and Management*. Unesco-ROEAP. Bangkok, 1986. pp. 10-16.

1.2.1 Centralized approaches to planning

Soon after political independence, many developing countries opted for a highly centralized system of planning. Several reasons were responsible for this:

- a) In most of the newly independent states, central governments were the only major institutions which could carry the burden of the nation state and national development with them;
- b) With a view to breaking away from the structural constraints of their economy, national governments launched massive development programmes, which necessitated strong intervention by the state in the investment and production processes; and
- c) International assistance agencies which were providing funds for the preparation of comprehensive plans for national development, wanted these initial projects to be carried out under controlled conditions.

In addition, there were several other factors which reinforced the desire for central planning and control-oriented management. Capacities at the local level were often inadequate. Local units were financially and technologically dependent on the national government. Many countries lacked social synergy and were plagued by severe ethnic, religious or cultural differences that made national governments curtail local autonomy. International capital also sought the protection and patronage of central control and management. Finally, there was an earnest faith in bureaucratic and impersonal management which now with hindsight may appear somewhat naive.

In time, as the tasks of development became complex, national governments turned more and more to the central planning and management of the economy. It was assumed that the benefits accruing from central planning efforts would 'trickle down' and ameliorate poverty.

But the results of macro planning did not fulfill the expectations it had aroused. It was soon found that such planning had only a limited out-reach. Moreover, it led to several kinds of imbalances especially between the centre and the rest of the country. Benefits of development, by and large, remained outside the reach of weaker sections of society.

These weaknesses in centralized planning pervaded the educational sector too. There are several reasons which could be identified as being responsible for the limited success of central planning in the case of education. These would, of course, vary from country to country and from one project to another, and would depend upon the context in which implementation took place. However, two generic reasons can be singled out as especially important:

- a) Macro planning could not take detailed field conditions into account. Specific local environmental factors, infrastructural availability and the aspirations of the people could not be woven into a macro-level plan; and
- b) Because of its very nature, a macro plan is not able to involve many field-level functionaries in the planning phase. As the commitment of these officers is essential for the proper implementation of the plan, in its absence, implementation is severely constrained. The end result of such partially conceived and inadequately implemented planning is that the gains of development are cornered by articulate interest groups whilst the stipulated target groups either remain unaffected, or benefitted only marginally.

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1.2.2 Re-thinking the process

The failure of macro planning to filter down the gains of planned development has highlighted the need for a rethinking of the planning process as a whole. International organizations which have analyzed the experience of the past development decades have reached the conclusion that to transmit the gains of development to the poorer sections of society, changes are required in organizational arrangements and devices which could facilitate and ensure the provision of basic needs to the target groups. This quest has drawn attention toward micro level planning. In essence it has necessitated development planning to be viewed as a modular structure in which the broad contours and the overall scheme could be outlined at the central level while the specific details about the programme and its phasing could be filled in at the micro level.

A certain enrichment of the planning structure and process is implicit in the recognition of the need for micro-level planning and management. But more importantly, national governments are charged with the task of bringing about social change by reforming their administrative and organizational structures as well.

Thus, lately, the direction and priorities of development policy have shifted significantly towards decentralization. The main purpose of the endeavour was to provide greater access to infrastructural facilities and social services for disadvantaged groups and to thus elicit greater popular participation in all economic, social and political processes.

1.3 Decentralization

Decentralization can be defined as the transfer or delegation, of planning, decision-making or management authority from the central government and its agencies to field organizations, subordinate units of government, semi-autonomous public corporations, area-wise or regional authorities, functional authorities, or non-governmental organizations. As defined, the concept is a broad one and includes on the one hand the shifting of routine workload and on the other, the devolution of powers to perform specified functions.

1.3.1 Forms of decentralization

Decentralization can be of two types: *functional* along certain well-defined activities; and *spatial* from higher aggregates to much disaggregated levels. However, it is important to distinguish among four forms of decentralization which can be used to transfer authority for planning and administration.

- a) Deconcentration which involves the transfer of functions and decision-making authority within the governments hierarchy, through shifting the workload from central ministries to field officers, the creation of field agencies or the shifting of responsibility to centrally-controlled local administrative units;
- b) Delegation to semi-autonomous or autonomous agencies which involves the transfer of functions to semi-government organizations, special projects, implementation units of regional or functional development authorities, which can often operate outside the government regulations or may act as agents for the state in performing prescribed functions. Ultimate responsibility of these functions, however, remains with the government;
- c) Devolution which involves the transfer of functions and decision-making authority from the central government to local governments; and

- d) Transfer to non-governmental institutions which is the process of shifting responsibility for functions from the public sector to non-governmental organizations.

Although the precise form of decentralization varies from case to case and depends upon the context in which planning and management is being carried out, in most of the developing countries, delegation and deconcentration are the dominant forms of decentralization and only rarely have central authorities devolved responsibilities completely to local governments.

1.3.2 Rationale for decentralization

A variety of arguments have been made for decentralizing development planning and administration. Some of these are given below:

- a) Decentralization allows development plans and programmes to be tailored to the needs of heterogeneous regions and groups;
- b) Decentralization allows greater representation for various political, religious, ethnic, and tribal groups in development decision-making leading to greater equity;
- c) Decentralization leads to the development of greater administrative capability among local functionaries and institutions;
- d) Decentralization relieves top management officials of routine task, thus freeing these political and administrative leaders to plan more carefully and supervise more effectively the implementation of development plans and policies;
- e) Decentralization provides a structure or geographical base, which can be effectively co-ordinated by local leaders and non-governmental organizations within various regions; and
- f) Decentralization allows better political and administrative 'penetration' of national government policies into remote areas where government plans remain often unknown by the rural people, or are undermined by local elites. This is one of the important effects of decentralization which strengthens the national governments, and their nation-state sustenance function by mobilizing the weaker and the disadvantaged sections behind the development programmes.

However, decentralization is not always desirable. Each proposal for decentralization must be evaluated on its own merit. In this regard, the support for and capacity of local leadership and organizations to perform more numerous and complex development functions must be established beforehand.

1.4 Inter-sectoral approach to planning and management

Contributing to the increasing importance attached to micro-level educational planning and management is the growing awareness of the value of inter-sectoral approach to planning. The concern for broadening the coverage of planning and management of educational reforms at the local level has been growing in response to:

- a) the need to view education not in isolation, but within the total social and economic milieu as an important component of basic minimum needs, requiring effective linkages with various developmental sectors;

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- b) the ever-expanding concept of the educational process itself which requires, in addition to the existing formal system, the inclusion of functional, non-formal and informal sectors of education, training and learning with implications for new structures, content, methodologies, etc.;
- c) the inability, on the one hand, of the formal educational system alone to provide for operationalization of the concept of equality of educational opportunity, and, on the other, the need in various developmental sectors to meet the differentiated requirements of specific groups; and
- d) the paramount importance of the involvement of the local community in various phases of pre-planning, planning, management and assimilation of educational development.²

These considerations involve changes in the conceptual framework of educational planning and have operational implications in terms of programming, management, training of personnel, institutional development, monitoring and evaluation at the local level.

1.4.1 Sectoral development activities to which education is linked

An indicative list of sectoral development activities in a local area, with which educational activities are closely linked, would include:

- a) agriculture and allied service
- b) minor and medium-scale irrigation work
- c) soil conservation and water management
- d) animal husbandry
- e) forestry
- f) processing of agricultural produce
- g) rural electrification projects
- h) transport and communication
- i) marketing and distribution mechanisms
- j) co-operatives and credit societies
- k) small scale and rural industrialization programmes
- l) other local infrastructure, mass media and publicity agencies
- m) social services such as:
 - education;
 - health and family planning;
 - nutrition;
 - water supply;
 - housing;

2 S.N. Saraf. Educational Administration and Multi-level Plan Implementation - Experiences from Developing Countries. International Institute of Educational Planning, Paris, France, 1985.

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- social and labour welfare;
- vocational and technical training;
- youth activities;
- n) labour and employment services

1.4.2 Inter-sectoral development

Ideally, these activities, at the local level, should reach all segments of the population and particularly the deprived groups. Capacities for participation in and utilization of these activities and their future growth depends on educational development (including schooling, training and skill formation). This has led to the following:

- a) the incorporation of formal, non-formal and informal educational and training components within the development programmes of different economic and social structures at the local level;
- b) the launching of integrated development programmes which are either area specific, such as Hill and Tribal Development Plans, or programme specific activities such as Small Farmers Development Programmes, with components for training and dissemination; and
- c) the acceleration in development of basic minimum needs programmes, covering health, family planning, education, nutrition, water supply, rural housing, rural roads, etc., in the local area so that the poorest sectors of the community benefit from economic development.

The convergence of these programmes, in operational terms, takes place at the area level, with a distinct and active interface with education. Both can be benefactor and beneficiary if proper linkages are developed. Identifying and establishing these techniques is a major challenge in micro-planning. Some of the instances where educational inputs may be available from other development sectors at the micro-level are described below.

a) Multi-source funding of education programmes

A micro-level planner may find that several activities of other development departments at the local level have significant components of education, training and improvement in skills. Such activities include rural development, craftsmen's training, agricultural extension, small scale and handicraft industry, minor irrigation, animal husbandry, tourism, etc. He may discover that the expenditure which other sectors and agencies, at various levels - regional and local - incur for training and informal education is quite considerable. These courses and activities need to be identified so that educational planners may take cognizance of the vast potential of the unexplored field of education, research, training, etc. outside the local department of education. Attempt may then be made to co-ordinate and pool the resources, in order to maximize the joint impact of various educational and training activities at the micro-level.

b) Academic recognition of non-formal programmes

In many local areas non-formal programmes of various development agencies and voluntary organizations are practically the only channels of education for the masses - but they are languishing for want of academic and professional support. With a view to consolidate these gains, a micro-level planner may choose to focus his efforts on three main fronts.

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- (i) Give such programmes adequate status and official support so that they gain in prestige and come to be regarded as alternative educational programmes.
- (ii) Develop academic components therein and give them educational support. Micro-planner can perhaps bring this around by getting some educationists/academics involved in some of these programmes.
- (iii) Get these programmes viewed as powerful instruments of modernization and development. This will be possible if their content is radically transformed by including modern science and appropriate social concerns and values.

While broad decisions in regard to these policy matters will have to be taken at the national and regional levels, implementation can only be done at the local level. To a large extent, it will depend upon the capability of micro-level planner to persuade other development functionaries and the clientele. In fact, there have been many instances where policies have been announced, but their implementation has been inadequate because co-ordination, planning mechanisms and administrative instruments have not been worked out in detail at the local level.

c) Area development projects

This type of integrated project has been started in several countries. Some of them have components of formal, non-formal and informal education and training catering to the needs of their target groups. The education sector can certainly make substantial contributions in such aspects, thus intensifying its interactions with these projects. Besides academic inputs, locational and spatial planning of education at the micro level, as well as the optimal sharing of facilities and resources are but some of the typical approaches. The use of school mapping technique for opening new schools and upgrading the existing ones along with the networking of schools are important uses of area planning approach in education. At the same time, there are increasing tendencies to open the school facilities to the community and to make them accepted as major local community action centres.

d) Building educational components within sectoral projects

Many area- or problem-specific projects, may have accents largely placed on improving physical infrastructures and providing financial inputs related to economic development, but with very little provision in the way of education and training as the critical means to form the human capacity required to utilize the material and financial resources. The micro planner should come in at the project planning stage to assess the educational needs of the target groups concerned and to assist the project authorities to build in the necessary training components within the project programmes and funds. With the help of the Education Department, professional input for the preparation of learning materials, supervision, training and other appropriate pedagogical inputs could also be provided.

e) Link-up between employers and educational institutions

There is a continuous need for co-ordination at the local level between the supply of, and demand for, educated, trained and skilled personnel for on-going and emerging developmental activities. Continuous monitoring and estimation of skill and manpower requirements as well as capacities to satisfy the manpower needs in the local level area are crucial aspects of micro-level educational planning and management.

While at the macro level, the existing loose-fit between supply and demand is a subject for long-term studies and research, it assumes serious dimensions at the local level because the consequences create different kinds of imbalances that can be rapidly felt by the local populace.

Educational planning and development at the local level geared broadly to area and regional economic and social plans, would bring out the need to establish links between educational programmes and the "emerging" and "developing" economic and technological profile of the micro-area. This would also serve as feedback to economic and social planners for the planning and development of productive employment opportunities in the limited organized sector on a long-term basis, and also in the large unorganized sector it could stimulate self-employment through various kinds of inputs.

For this and several other reasons, a suggestion is made that micro planning may focus on full-time pre-employment *general vocational training*. More specific skills can be imparted as per the requirements of the employer. This would imply closer collaboration between the suppliers and consumers of educational products i.e. the education department, other development agencies/departments and the organized and unorganized sectors of the economy.

In many local settings, there are ongoing experiences in the provision of training for self-employment. Such experiences have been accumulating and their sharing between and within the local areas may prove beneficial. In highly populated developing economies, shortages of standard and salaried employment opportunities is one of the causes of poverty. The informal and unorganized sector can provide the setting for the formation of skills in which on-the-job training may be incorporated. This is a task requiring linkages between the various development sectors themselves and with education.

f) International agencies' support for integrated projects

There is a growing interest among international agencies in supporting various forms of training. Among these three can be enumerated:

- i) general pre-employment training for the labour market at all levels in education projects;
- ii) project-specific training; and
- iii) area-specific training mostly in urban or rural development projects including the informal sector.

It is felt that contributions of these agencies combined with the national efforts being made everywhere would help in developing appropriate educational plans at the micro level.

1.5 Micro-level Planning and Management: *Advantages and Disadvantages*

The disenchantment with centralized control and macro planning, the movement towards the decentralization of administration, and the increasing emphasis on inter-sectoral approaches to development have each contributed to a climate conducive to the acceptance of micro-level planning and management in education. A fair assessment of micro level planning and management is called for at this juncture, which begins with its advantages.

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1.5.1 Advantages of micro-level educational planning and management

- a) The introduction of micro-level educational planning is dependent on ensuring local participation in both the planning and the implementation process with the involvement and interest that such participation generates. It is likely to promote in the people at large, an identification with the plan, thus better ensuring its implementation. In other words, the educational plans prepared at the micro-level can become more feasible for implementation as compared to the ones imposed from the top.
- b) Educational plans prepared at the micro-level are more sensitive and hence more responsive to the local needs and problems of the people. Within a developing country, there may be many geographically different and socio-culturally diversified regions. No educational plan prepared at the macro-level, however good it may be, can ever take into consideration the educational issues and problems of people living in plains, in hilly tracts, in urban areas and in far-off rural areas simultaneously. Micro-level arrangements provide an opportunity to ensure that the whole process of planning is in tune with local issues and balances.
- c) Educational planning at micro-level can help the local people who are in control of affairs to reconsider, recast and amend plans in the light of rapidly changing circumstances in the socio-cultural, political and economic circumstances of the community which is served.
- d) Micro-level educational planning enables the local management and implementing machinery to focus on the specific and varied needs of even smaller sections of the community. Unlike macro planning, only micro-level educational planning can meet the diversified and specific needs of such smaller groups of the community.
- e) Micro-level educational planning can further ensure the immediacy required between planning and its implementation. With macro-level plans, sometimes the delay and time taken in implementing them defeats the very purpose of planning. Micro-level planning can very safely reduce the time-gap between plan formulation and its implementation and thus help in achieving the objectives for which it was really meant.
- f) In the context of micro-level educational planning, when people interact with each other, it often leads towards a sense of oneness and homogeneity. This is conducive to closer collaboration in undertaking projects of common interest, in monitoring progress, and in introducing rapid and effective adjustments.
- g) Since people are more likely to be committed to the implementation of plans formulated at micro-level, the situation can automatically lead to mobilization of already existing resources and generation of new local resources to an optimum extent. This may to some extent, reduce the financial burden on the national exchequer for providing education to the masses.
- h) Micro-level educational planning also serves as a means of further education for the people living in a particular community. It gives them a chance of identifying, thrashing-out and analyzing their problems, thus creating in them a sense of critical analysis and deeper insight into the problems of the day. This has a multiplying effect in raising their understanding and conceivably their future quality of life.
- i) Micro-level educational planning can further serve the cause of community education by paving the way for a happy blend of formal and non-formal streams of general education. This is more likely to create a congenial atmosphere for the life-long and continuing education

of the citizens at large, and particularly for the minority groups, tribal groups, females, the rural and the urban poor, the out-of-school youth, children, farmers, artisans, landless, labourers, etc.

1.5.2 Some problems associated with micro-level educational planning and management

There are also problems and disadvantages associated with micro-level educational planning. These are described in brief as follows:

- a) Since literacy levels are often very low in the developing countries especially in rural and far-off areas, people may not be motivated to appreciate nor participate in micro-level educational planning. This may be set right by launching publicity and awareness campaigns about the possible benefits of the approach.
- b) It is possible that micro-level educational planning may lose sight of the global educational scene and goals at the national level. It may tend to meet local needs at the cost of de-emphasizing national integration. Once again, however, this may be corrected by stressing and requiring that local education authorities plan their education within the broader framework of the overall national objectives of education.
- c) Sometimes, rural people are divided into different interest parties and groups. This kind of "local politics" can hinder the adoption of integrated micro-level planning in education. This problem is often linked with a low level of literacy and understanding of the democratic process. Eradication of illiteracy may, in itself, improve this situation.
- d) In view of certain socio-cultural beliefs and values, people in some regions of developing countries do not appreciate the significance of education. For that reason, they generally prefer their children to work rather than attend school. In the case of rural girls, the phenomenon is all the more serious. Here again motivational campaigns planned and carried out within the micro-level context, may convince the people of the benefits of education in the daily life of their children and in raising the general quality of life.
- e) Sometimes plans based on needs and problems identified at the micro-level are changed or revised when they reach the regional and national levels. People who have been involved in the development of the micro-level proposal, as a result, often become disillusioned and frustrated at having been involved in an activity which in the long-term has proved fruitless.
- f) Literacy levels of certain segments of the population pose some difficulty in data collection at the micro-level. Questionnaires and checklists are often not likely to be effective and new approaches to data collection may need to be adopted.
- g) While the aim of governments is to provide equal educational opportunities to every individual, the introduction of micro-level planning may create differences in the provision of educational services in different local areas. The extent and scope of planning at the micro-level depends on the efficiency and initiative of local personnel. The progress and rate of development may thus differ from one area to another, resulting in imbalances.
- h) Not much can be achieved if the planners and administrators at the micro-level are not competent in educational planning. To the extent that teachers and educational planners at the micro level have not as yet developed the interest and competence in educational planning,

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the desired results of micro-level planning cannot be achieved. It is vital that people at the micro-level be trained in understanding the concepts and strategies associated with micro-level planning and management.

- i) The introduction of micro-level educational planning necessitates the frequent review of district educational plans. Provisions must be made for this so that progress achieved in the implementation of the plans and problems faced can be reviewed in consultation with all parties concerned. Reviews are required by headmasters, professional organizations of teachers as well as officers in the local education office. Without these reviews, adjustments to the plans are not possible. Hence the desired results of micro-level planning and management cannot be achieved.
- j) The success of micro-level educational planning at the district level will depend to a large extent on the continuous interplay and communication of ideas between the macro and meso level education departments, the micro-level education offices, and the schools. Directors of the State or Provincial Education Department and District Education Offices generally maintain a close rapport with each other. However, as each District Education Officer has under his responsibility many schools some of which are in remote location, the continuous exchange of ideas in the micro-level planning and management setup may not be forthcoming in certain areas. Communication and continuous interaction must be maintained.

1.6 MLPM within the multi-level context

There are several kinds of planning exercises which vary according to the spatial hierarchy and the extent of aggregation. At the one end of the spectrum is macro planning which deals with national level or large regions; on the other end, the field level operations are the subject matter of micro planning. In between the two, occasionally there is another layer called meso planning. Whereas all these three layers are region specific, institutional planning in education relates to schools, colleges and universities in their individual entity.

There are several factors which are responsible for the emergence of micro level educational planning as an important area of public policy. Some of these are historical in nature and are out-growth of the previous development policies pursued by the national government. More importantly, it has been realized that educational development cannot be universalized without planning for it in an integrated manner, and in close interaction with other sectors of development. Thus the interest in the subject is an outcome of both the experience of the past policies of development and the multi-faceted nature of the task of educational development. There are several advantages as well as limitations which are associated with micro-level planning. These have been briefly described to reinforce the view that micro-level planning needs to be viewed within a multi-level framework.

Chapter 2

The Process of Planning

2.1 The planning cycle

In the previous Chapter the essential concept of micro level planning and management has been introduced. Now the planning cycle and the key steps which are essential for developing a micro level educational plan will be described. It is useful to note that these steps are not enumerated as a doctrinaire approach, but rather illustrative of the considerations which a systems-based planning exercise should contain. Similarly their relative importance and the extent of elaboration under each sub-theme is not indicative of any hierarchical structure. As a matter of fact, in any exercise of planning, the *planner is the key decision-maker* and it is assumed that he would carry out improvisations whenever required.

It should be obvious that different activities which comprise the complete process of educational planning are mutually *inter-connected in a complex pattern*. In a general planning situation, these steps can be described as follows¹:

- (a) Pre-plan activities -
 - (i) diagnosis
 - (ii) organizational set up
- (b) Prioritization and plan formulation
- (c) Programming
- (d) Project formulation
- (e) Plan implementation
- (f) Monitoring and evaluation
- (g) Modification and re-adjustments

However, in the context of micro-level planning, the relative importance of different steps undergoes certain changes. In this section, an attempt is made to briefly elaborate on the plan cycle as it may take place in a micro situation.

2.2 Pre-plan activities

There are several vital steps that have to be taken before educational planning can be carried out at the micro-level. First of all, the urge for such planning may either originate locally, or in response to invitation from higher level organizations or institutions. If it is local in character, then the first thing the micro-planner has to do is to carry out an *assessment of local aspirations vis-a-vis education*. He must ascertain the goals and objectives which are sought to be fulfilled through education within the local

1 For a detailed description of the process of educational planning, see Basic Training Programme in Educational Planning and Management, Book IV. Unesco, ROEAP, Bangkok 1982

development context. This would enable him to acquire some understanding about the type of education which needs to be developed in the local area.

Alternatively, if the suggestion for planning of education has been mooted from higher levels, then the micro-planner should *survey the reactions and response of the local community*. He will have to find out what aspects of it would fit into the local environment and respond to the local needs, and thus be welcomed enthusiastically. Some other components that may be accepted indifferently or even encounter resistance from the local area would also have to be identified so that necessary preparations could be made for local adaptation.

An assessment of compatibility of social aspirations at the local level is vital from several points of view, e.g. mobilization of resources, community participation in management and supervision. To a large extent, the utilization of educational facilities and gains from them also depend upon the perceived relevance of education among the local people and the extent of their *identification with the objectives of education*. It is possible that some of the goals, conceived perhaps at higher levels of social hierarchy, may need to be interpreted and explained at the local level. Acquiring a broader understanding of the issues involved in education and sharing them with the local citizens is one of the vital aspects of micro-planning.

(i) Diagnosis

Among the pre-plan activities to be considered there is in the first place the need to examine the existing education system at the local level, in the face of the expressed aspirations and goals of education. Such an exercise assists in developing an idea about the *tasks for which new plans need to be undertaken*. This could relate to two kinds of tasks, viz those which are already in operation but need to be improved, and those which need to be undertaken anew. Such an analysis is known as diagnostic analysis and forms the basis on which education policy and plans are conceived.

A sound diagnostic analysis also sometimes lead to a re-examination of objectives of education policy. Needless to say that diagnosis is likely to differ from local area to local area, whereas an education policy, couched as it is in general terms, is likely to be applicable in broad terms. A micro planner plays an important part in *relating the local conditions with the broad policy framework*. In the absence of micro planning this task will not be performed adequately, and may lead to deficiencies in implementation. In the succeeding Chapter, more details on the diagnosis of educational situation will be provided.

(ii) Organizational set-up

The process of educational planning requires an assessment of the adequacy of organizational and administrative set-up in the local area and its interactions with other local authorities. This first needs to be examined to determine whether it is capable of mobilizing, supervising, controlling and evaluating the implementation of educational development plan. Quite often in the developing countries, whereas the diagnostic analysis and the policy formulation is carried out quite comprehensively, the plan could not be implemented for *lack of suitable organizational and administrative structure* at the micro level. A micro-planner must judge the potential of the administrative structure in the local area and strengthen it if necessary, before the implementation of an education plan can be launched. Here, the local administrative is understood to include those at the institutional/school levels.

2.3 Prioritization and plan formulation

At this stage, the educational goals and objectives and the broad framework of the national education policy and plan are used as the basis for developing the micro-level action plan. The process of plan formulation breaks down the general education policy by level and type of education and provides the broad objectives in operational terms, such as the universalization of primary education, diversification of secondary education, quality improvement, etc. The micro-planner confronts these aspects with the local educational environment and needs, and then *assesses the educational aspects* which need to be emphasized in that particular local surrounding. For example, the higher education component may not be applicable in remote rural areas. In some contexts the universal access to primary education may have already been achieved and the micro-planner may be more interested in qualitative improvements in education.

Then there are the national plan targets in various types of education. By taking into consideration the local educational realities as assessed during diagnosis, together with the emphases identified earlier, local educational targets are set for the different levels and types of education.

More importantly, the educational plan at this level of aggregation is more in the nature of sectoral plan. One of the major steps in plan formulation at this stage is to arrive at appropriate *resource allocation* among the different levels and types of education. Thus, different sub-sectors of education are assigned matching magnitude of financial allocations and the overall resource feasibility of the education plan is judged. Obviously, this step is usually taken at the higher level of aggregation and the micro-planner may not be involved in the exercise. However, the magnitude of allocations as such is significant from the indicative point of view, from which one can then infer the size of funds to come.

Another aspect of financial allocations that is of particular importance to the micro-planner is related to the *unassigned or untied funds* which, if provided in the national plan, give additional freedom of action to the micro-planner. The size of such funds and the channels of access to them should be constantly kept in view in the process of micro-planning and management.

Resources allotted to the micro-level educational administration are seldom found to be sufficient to meet the requirements of the entire education sector. It is here that *prioritization* comes into play.

The pervasive shortage of funds for education these days has led to much prominence of prioritization and it has assumed core importance in plan formulation. Prioritization may be determined according to the overall emphasis on equity or quality, taking into consideration the general orientations of national policy and plan. More importantly, prioritization in micro-planning has to give due weight to satisfying local educational needs while at the same time keeping in view local implementation capacities. In this process, the micro-planner will identify and rank different areas of priorities and patterns of allocations, and take decision in the order and magnitude of resources allocations.

2.4 Programming

Having determined the priorities, set the local educational targets, and made the broad financial allocations, the micro planner arrives at the programming stage. Here, the sectoral plan is broken into specific action areas which are termed programme areas such as universalization of primary education(UPE), expansion of technical/ vocational education(TVE), etc. Against each programme area, strategies of implementation, organizational and operational approaches to be adopted, as well as the tentative schedule of actions can be designed.

It is also at this stage that detailed resource allocations are made, based on the programming results.

2.5 Project formulation

Programming is followed by the formulation of concrete educational projects, which further break down the programme areas and render them operational. Under project formulation, the micro-level educational programme action areas are translated into *specific activities*.

Project formulation also entails the *identification of appropriate agencies* that will actually carry out the implementation tasks. For each activity and agency, the time frame of activities is spelled out in detail, and the amount of resources required, financial or otherwise, is determined.

Prior identification of *potential constraints* that might affect the achievement of the micro-level educational project is also part of the tasks to be performed under project formulation. Likely over-runs in terms of time and costs are estimated.

A project constitutes the basic unit for the purpose of administration and financial management. It is generally at this level that actual monitoring, evaluation, feedback and control occur. This is also the "Achille's heel" of educational planning and management mechanisms in the developing countries, and in particular at the micro level.

2.6 Plan feasibility

Having planned for the educational programmes and projects at the micro level, it will be useful to make a final check of the feasibility of these components within the general plan framework, before they are put into implementation.

At this stage, programmes and projects are examined individually as well as together in order to study their *inter-linkages and interactions*. Possible conflicts and gaps are identified, especially in time schedule and resource allocations. Efforts can be made to adjust the projects and introduce measures and mechanisms to avoid or minimize likely hazards and delays. At the end of this examination, the micro planner will have to decide on whether to go ahead with the launching of the micro-level educational plan, if he considers that all or most of the possible obstacles to the smooth implementation of the entire plan have been eliminated. Alternatively, he may wish to make more basic revisions in the plan, programmes and projects. Sometimes, the method of field-testing within a limited scale is used to aid in decision-making.

2.7 Implementation

After the plan feasibility has been confirmed and all the necessary resources have been provided, actual implementation begins. The process of operationalizing the plan necessitates laying down organizational structures for carrying out the different tasks. It also implies establishing communication channels among the different points of the organization. Certain continuous monitoring and feedback mechanisms will have to be provided. Plan implementation naturally runs into the *management process*, and all functions of management viz. organization development, personnel, finance, etc. will be performed.

The micro planner has to ensure that all the management functions get carried out with care and efficiency. Since most of the times the micro-planning setting is below the cutting edge of the government, plan implementation may run into problems that can cause dissipation of implementation efforts. Tardy

implementation may lead to ineffective performance and marginal impact, even though the resources get spent. Frequently, deficiencies in the implementation of key projects within the micro-level education plan may lead to the general failure of the entire plan.

2.8 Monitoring and evaluation

It is in this context that the role of monitoring and evaluation surfaces as the vital link in a plan cycle. Monitoring helps in adjudging the status, progress and performance of plan implementation and points out the constraints faced. A well-developed monitoring mechanism is capable of anticipating or detecting stress points so that either preventive measures can be launched in advance or remedial actions can be taken in time.

In micro-planning, close monitoring of the status and progress at the field level becomes even more significant as the micro planner may be able to identify impediments at an early stage. Special measures may be taken immediately at the grassroot level itself and subsequently, corresponding adjustments may be introduced at different levels of the plan.

Whereas monitoring of a micro-level educational project may indicate whether the tasks have been performed according to schedule with the timely input of the requisites, assessment of the attainment of goals and objectives is yet another step in planning. This is known as evaluation.

Evaluation can be performed during any period of plan implementation, as far as there is monitoring information on which to base the appraisal and assessment. As an essential phase in the planning cycle, a more thorough evaluation is usually done at the end to assess the overall level of achievement. For projects with longer durations, there may even be evaluation by stages. And many evaluation works are carried out with the help of outside agencies.

In micro-planning, the higher hierarchy may be involved in the evaluation of the micro-level educational project. But more and more, the practice of *self-evaluation* by the project officers is being used, and continuous self-evaluation mechanisms are increasingly being built into educational projects even at the stage of project formulation.

A thorough evaluation covers all aspects of an educational project: financial, physical resources, personnel management, organizational design, communication, outcome and efficiency. Most important of all, an evaluation should attempt to gauge the impact of the educational project within the local area, and to identify the shortfalls and problems so that in the planning of the next cycle of operations, appropriate corrective measures and mechanisms could be introduced.

2.9 Modifications and readjustments

Monitoring and evaluation provide feedback information to the micro-planners and managers. Based on such information, the original plan and implementation process can be modified and adjusted in order to respond to changes and re-direct the course of actions. Such readjustments may vary from simple procedural improvements or in the management style, to fundamental alterations of the micro-level education action plan.

It is to be noted that modifications and readjustments are basic components of the planning process. They are indicative of plans being realistic in the setting of targets and line of actions. With regular mid-course adjustments, the *planning process becomes an on-going activity* from the beginning of conception to its evaluation and completion. With successive applications certain parts of the planning model get

improved whereas other aspects may require changes in the face of technological and/or socio-economic changes. It is in this framework that planning emerges as a continuous activity in which the micro-planner seeks constantly to improve efficiency and effectiveness.

The micro-planner has in reality a very important role to play when it comes to modification of plans. Being located in the field and involved in the direct and detailed implementation of the plan, he is in the best position to assess the shortcomings and possible remedial solutions. In decentralized planning and management, he can take immediate actions to alter the course and speed of implementation. At the same time, the situation, problems and suggested measures may be communicated to higher levels for advice, co-ordination and additional resources if necessary. More frequent inter-level consultations for the introduction of remedial modifications can lead to true *multi-level educational planning and management*.

2.10 Complexities in the planning process

It may be noted that all the information described above may not be always available to a planner. In particular these may not be available as certainties, as once a set of options has been exercised the other options may no longer remain open or acceptable. In this sense the planning process is analogous to a "game" sequence. At each step there may be several options which hinge upon the previous step and/or dependent upon what happens elsewhere. A micro-planner has to read the data continually in order to choose his path in a strategic manner.

It is to be noted that at the micro level, the chosen path may not always be the one which is indicated by the formal models of planning. There are several aspects of social reality which are normally not covered by mathematico-logico-technical models. Hence the planner may let his intuition and his "understanding" comprehend the reality and then launch on a path which he feels is right. It is in this sense that planning emerges as an art. Such a process is more likely to happen at the micro level. A micro-planner by virtue of his proximity to the grassroot level, is in a better position to make accurate judgements about the most appropriate paths to follow. Or in any case, he can further and repeatedly adjust at a rapid pace to reach the desired goal.

Finally, there is one more aspect that merits the micro-planner's attention. This relates to the design of a micro planning and management model for the local area. This is necessary if, autonomous and without much support from higher levels, further decentralization exerts additional pressure on the micro-planner's capability to develop his own diagnosis and remedial measures.

Chapter 3

Elements of Planning at Micro Level

3.1.1 The Context of Micro Planning

Most countries have explicitly stated policies and plans with respect to educational development which, together with other sector plans, constitutes the overall national socio-economic development plan. In many cases, education and training programmes and activities are also incorporated into other development programmes and projects. This being the case, the formulation of a micro-level educational plan has to bear a meaningful relationship with these overall policy objectives, sectoral plans, programmes and projects.

3.1.2 National Parameters

If the country's education policy states that a standard curriculum is to be followed nation-wide, the micro-planner has to accept it as such. Similarly, if the policy states explicitly that the national language must be the medium of instruction and that teaching of a second language must be introduced from the beginning of a certain grade, there is no choice but for the micro-planner to comply with it. Such factors have to be regarded as parameters within which the micro-planner has to perform his functions. Indeed, the micro-planner has to operate not only within the confines of such stated policy objectives, but also in due recognition of the political and social pressures as well as the cultural and environmental factors in his milieu.

Similarly, it is essential that the micro-planner be sensitive to the administrative, structural and institutional context within which his functions are performed. By *administrative context* one refers to the overall organization of the educational administration in the country and the extent of authority and responsibility delegated to the micro-planner within the total planning and administration system. The micro-planner should, therefore, be thorough in his knowledge and understanding of the standing rules and regulations which determine the planner's degrees of freedom in the operational sense.

3.1.3 Degrees of Freedom

The micro-planner has to recognize the degrees of freedom that enable him to exercise imagination, initiative and independent action. For example, one of the salient features which characterizes the work of a micro-planner is his direct relationship with the community. By and large, the micro-planner has a fairly wide degree of freedom to exercise initiatives and actions in the promotion of community involvement in the formulation of a micro-level plan as well as in its implementation. It is in such areas that the micro-planner's potential can be brought into full play.

3.1.4 Linkages

As has been mentioned in the previous Chapter, the micro-planner must also be aware of *inter-sectoral linkages*. Education is only one of the activities in a local social environment or a community; there is an array of developmental activities at the community level with which education has to interact in a meaningful way. Such activities may include agriculture, industry, transport, communication, health,

social welfare, etc. In other words, the *inter-sectoral links* between education and other developmental activities can and should be given priority attention in the work of the micro-planner, particularly to promote local community support.

Yet another dimension of the micro-planner's work is the *institutional linkages*. At the local community level, a number of institutions, both governmental and non-governmental, are involved in educational as well as other developmental activities. The micro-planner for education should be in constant touch with the work of such institutions so that all pertinent educational and training efforts from various agencies can be co-ordinated in the process of micro-level plan formulation and its implementation.

In short, the micro-planner should be fully aware of the constraints, freedom and linkages which will ultimately determine the success of MLPM.

3.2 Information gathering and decision-making

It must be recognized that the planners's own knowledge about the area is of paramount importance. It is in light of this detailed understanding about the local area: its inhabitants, status of educational activities, and socio-economic conditions, that the micro-planner can determine which aspects of the problem need to be given more, or less, attention in the micro-level plan. This aspect of micro-level planning is of particular significance. .

Notwithstanding local specificities, there are a number of universal features which have to be kept in view. Some of these are discussed below. It should be mentioned however that while most of the substantive aspects of the problems are discussed, the methods and techniques associated with these are discussed in more details in detail in subsequent Chapters.

3.2.1 Learning groups

The first and certainly the most important task in educational planning is the identification of the learning groups which constitutes the clientele of education. These would include:

- i. pre-school children;
- ii. school going pupils;
- iii. left-outs and drop-outs as potential pupils of both the formal and non-formal education systems;
- iv. members of adult education groups;
- v. beneficiaries of extension facilities;
- vi. students of recurrent and continuous education; and
- vii. Other potential learners

What should the micro-planner know about these learning groups? A simple answer to this question would be "practically everything": Who are they? Where are they? What are their learning needs? What are the obstacles to their active participation in learning events? Depending upon the situation one may group these potential learners into different categories, according to their size and characteristics. It may be noted that it is here that the micro-planner can be especially effective by being able to obtain detailed information about his clientele: disparities, priority target population groups, learning patterns, and possible educational strategies.

a) Student flow

Firstly, one may deal with those children who are likely to join formal education and are supposed to follow it through until graduation. In most parts of the world, where a certain degree of development has already taken place, such children would constitute the bulk of the school-age population. Among the developing countries also, their magnitude is increasingly steadily. In this case, the major task of a micro-planner is to anticipate their *admission rate* into the education system and their progress through the different grades.

Student flow analysis is one of the most regularly used techniques for educational planning. Its method is explained in chapter 6. But it should be noted that one is interested here in both the *magnitude of the flow* so that the corresponding number of educational facilities could be provided, and the *fluctuations in this flow*, so that the short term adjustments in the facilities and their utilization could be made. Student flow analysis is commonly used to project the number of pupils who would constitute the clientele of the system and to gauge the internal efficiency of the education system.

b) Variations in fluctuations

At the micro level one may come across variations and fluctuations in the student flow which are usually not observable at the macro level, such as those due to student transfer between schools and educational districts. The *fertility behaviour* of the local population may undergo changes as a result of migration and changes in the age distribution of the population. Similarly, the *sex ratio* may be found to deviate from the national average. It is in this sense that the specificities of MLPM come into effect and the micro-planner has to be quite alert in using the appropriate approaches and instruments of analysis.

c) Location Planning

The micro-planner has to be aware of the *spatial distribution of learners*. It is their pattern of habitation which is of crucial interest to the planner. *School location decisions and school mapping exercises* can be undertaken on a frequent basis at the micro level to maximize educational coverage. School mapping exercises are also aimed at ensuring the maintenance of the quality of educational facilities, as well as their full utilization. These techniques will be dealt with in Chapter 7.

d) Out-of-school children

In addition to the regular group of learners described above there are others: *left-outs, drop-outs, failures, and young early school leavers*. It is in this group that the micro planner is likely to confront a vast diversity. Not only would there be differences among the left-outs, drop-outs and the failures but even within each of these categories there would be differences, for example in the causes and patterns of non-attendance. It is not really possible to identify these differences from the macro level. Consequently these manifestations and diversities place a micro-planner in an advantageous position vis-a-vis the macro planner. In the case of student flow analysis, a micro planner may be able to identify peculiar patterns for specific local areas and population groups. More relevant micro-level educational strategies and plans can then be developed.

For example, the micro-planner may explore in depth into possible reasons/causes for left-outs and drop-outs. If these are such that they can be eliminated with micro-level interventions, then concrete measures can be immediately taken. However, it may be found that the reasons and causes are such over

which the educational system and the micro-planner have no control. In such a situation the micro-planner can communicate the information to the related sectors and to higher levels of decision-making so as to set in motion appropriate corrective measures.

As another example, it may be found that it is the illiteracy of parents, or of the mother, which is constraining the child from joining schools. The micro-planner may recommend an adult education drive to combat this problem. Similarly, it may be found that children are required for fetching water, or fuel wood, and hence cannot attend the school. Provision of basic amenities may be indicated by the micro-planner as a result. Usually at the macro level such a detailed and precise awareness does not exist. It is here that micro-planning and the micro-planner have a significant role to play. To be able to *communicate the ground level conditions* to the higher echelons of policy making is therefore an important and immensely valuable contribution of micro planning and management.

e) Restraining factors in retention

The micro-planner will have to examine and understand the pattern of drop-out and isolate the possible causes. Whereas he may have come across institutional factors governing the behaviour of drop-outs, the micro-planner may find that there are more personal and familial factors which may be at work vis-a-vis the drop-out behaviour. Depending upon the micro-planner's understanding about the operating factors, he may be able to *identify the intervention strategies* so as to improve the retention capabilities of educational institutions. For example, quality improvement in school facilities, availability of extra curricular, sports and games facilities may go a long way in sustaining the interest of pupils and contributing to their self-growth.

In several countries it is found that the agricultural cycle, or pre-examination stress, is responsible for the drop-outs. In such situations, changing the local school calendar or having a different mode of assessment may be indicated. Here it may be pointed out that whereas all the possible factors responsible for drop-outs may have been identified and documented in most of the countries, it is usually not known which of these are operative in a particular situation. It is here that MLPM has an edge. A micro-planner has a better feel for these causes and hence is better equipped to suggest relevant interventions.

f) Non-formal education programmes

For both of the categories described above, namely the left-outs and drop-outs, a micro-planner may mobilize locally available resources to launch programmes of non-formal education. Depending upon the number of learners, he may divide them into many groups. These may vary in their scheduling, level and curriculum content and methods. It may be noted that only the field-based micro-planner would be in a position to assist in developing such programmes and to see to it that these programmes effectively cater to the unmet educational needs in the local area. Small surveys may also be launched to gauge the variations prevailing in the system and the effectiveness of non-formal education programmes.

g) Adult and continuing education

Adult education and continuing education seekers constitute a major learning group at the micro-level. It is quite important to be able to handle this group satisfactorily as it may have several positive implications. Firstly, existence of an enthusiastic adult and continuing education group is itself a big asset in mobilizing the community's resources and goodwill for education. The tasks of a micro-planner would be rendered easy if such a group were cultivated in the local area. Secondly, education (whether skill-based

or literacy-based) provided to this group yields immediate benefits to the local society as most of them are engaged in productive activities. Thirdly, with the help of such a group it should be easy for a micro-planner to ensure better attendance at schools as well as better supervision.

The adult education group overlaps with another learning group - the beneficiaries of the extension services of education. For education to be relevant and be deemed valuable, it is important for it to proceed beyond mere literacy and numeracy and become closely involved in the process of development. For this purpose, people engaged directly in productive activities have to be woven into the educational programmes. It is obvious that their inclusion would cause fundamental changes in the educational process, particularly in the choice of curriculum, its medium and method of instructions. Diversities in age, job profile and learning needs of this group would require a high degree of flexibility in the planning of extension education to them, which the micro-planner will be in the best position to satisfy.

So far such a marriage between education and grassroot productive activities has not materialized. To a large extent this gap has persisted, due to insufficient attention to the multi-sectoral approach in MLPM. Absence of micro-level planning has precluded the emergence of more articulate and active segments of the population in education. Consequently, in their perception, education has continued to be a remote and a bookish activity carried out in classrooms. A micro-planner by the virtue of his field level placement is thus in a strategic position to bring about far-reaching changes by including the beneficiaries of extension education within its ambit and by steering education towards its immediate neighbourhood and implementation.

h) Inter-connected groups

Lastly a micro-planner should take note of the inter-relationship among the different learning groups. They form an essential framework which a micro-planner can use effectively to promote micro-level educational development. Different learning groups constitute an ensemble, the whole of which has to be understood and taken cognizance of by the micro-planner. The micro-planner recognizes that each of these sub-groups have to be motivated and mobilized for educational development. It is particularly the inter-linkages among the different sub-group which appear to be in concert with each other but can only be seen from the micro level. At the macro level these are hidden due to distance and high level of aggregation of information.

3.2.2 Educational personnel

A second important area in micro-planning on which data and information has to be collected and decisions have to be made concerns the education personnel. This group of education personnel is generally classified into two categories, namely: (i) teachers, who constitute the largest single component of this group, and (ii) the non-teaching staff which includes the superintendents, inspectors, education specialists, supervisors, principals, headmasters, clerical and other support staff.

(a) Teaching Staff

The micro-planner needs precise information on the educational personnel to enable him to first conduct a diagnostic analysis of the current situation. The aim will be to find answers to the following questions:

i. *Is the present number of teachers adequate?*

To answer this question the micro planner will need information on the total number of existing teachers classified according to level of education (e.g. primary, and secondary education); type of education (e.g. academic/general, technical, vocational, agricultural, etc.); and type of school administration (e.g. public school, private sectarian, private non-sectarian, etc.). This may be checked against the number of learners attending schools and the amount of available physical facilities, to determine the adequacy of the teaching force. Here, established norms such as the pupil-teacher ratio, pupil-classroom ratio, per teacher cost, and other indicators can be used. Given that other factors such as the method of teaching affects the ratio of teacher to pupils as well as modalities of delivery such as distance-learning; these too should be taken into account.

ii. *What is the distribution of the teachers in the different levels and types of education taking into consideration their sex, age and the type of community to which they are assigned (rural/urban)?*

To assess the distribution of teachers and to identify disparities, this will need more detailed information on the number of teachers in the three levels of education classified according to geographical area, sex, age, and type of community.

iii. *What are the educational and professional qualifications of the teachers?*

Here the micro-planner needs information on whether the teachers possess the minimum educational qualifications required for the position; whether they have the appropriate eligibility required by the professionalization board, if any; and whether they have worked for their professional upgrading by pursuing higher studies or through attendance of in-service training, etc.

iv. *Are there enough teachers having fields of specialization required in the schools? How are they distributed?*

Information needed to answer these questions would cover: the number of teachers classified according to their major fields of specialization; their distribution in the schools by geographical and urban/rural areas; the number of teachers teaching subjects not in line with their fields of specialization; and unfilled specialized teaching posts.

v. *What is the distribution of teachers according to their seniority and total teaching experience?*

To answer this question, data are needed on: the number of teachers by age and by number of years of teaching experience; the number of years they have taught in specific grade or year levels; and the number of years they have served in a particular station.

(b) *Non-Teaching Staff*

The other group of educational personnel on which data and information are needed by the micro-planner is the non-teaching staff. This group is comprised of school principals, headmasters, superiors, inspectors, superintendents, clerical and other support/facilitative personnel. Information needed about this group includes their sex, age, educational and professional qualifications, and length of service in the present position. Such information may be used on the one hand for assessing the ratios between teaching and non-teaching staff; on the other hand, it constitutes an essential basis for personnel management.

3.2.3 Outcomes of diagnostic analysis of educational personnel

After doing a thorough diagnosis of the existing situation related to education personnel, certain outcomes can be clearly noted which will be the focus of the micro-level planning activity. These will cover:

- i. Overall shortage or excess of teachers - This requires the micro-level educational planner to consider certain decisions related to: the creation of additional teachers posts and the corresponding budgetary requirements; and in the case of excess teachers, to transfer teachers to schools where their services are needed, or a reduction of the teaching force.
- ii. Imbalance in the distribution of teachers in the different levels and types of school - This will result in the micro-planner making decisions pertaining to: incentive schemes or measures to have an equitable distribution of male and female teachers in schools by geographical areas and in the rural and urban communities.
- iii. Shortfalls and disparities in competencies - This will require the micro-planner to take decisions relative to: teachers re-deployment; having a continuous staff development programme; providing scholarships or training grants to deserving teachers; or giving feedback on the shortfalls of new teachers to teacher-training institutions which provide pre-service training.
- iv. Shortages in specialized fields - This will likewise necessitate the micro-planner to consider: allowing teachers to teach subjects which are not within their field of specialization or having people who are professionally trained but not teachers teaching technical subjects, e.g. an engineer to teach mathematics in the high school as a part-time teacher; or devising incentive schemes to attract people to specialize in fields where there is a dearth of qualified teachers.

It may be stressed that all these conditions have important implications on the preparation of an education plan. Moreover, the educational planner at the micro level has to function within certain limitations imposed by national personnel policies, rules and regulations and the demands of the local education system.

3.3 School facilities

In the context of MLPM the issue of school facilities can be approached in the following manner:

- i. Provision of buildings and other infrastructures in locations where schools are needed but do not exist;
- ii. Upgrading, expansion and additions to the existing facilities in response to the increasing number of students, or in response to the diversification of school activities; and
- iii. Maintenance of the school infrastructure and facilities.

3.3.1 Norms and Standards

Normally at the micro level all three aspects of the problem will have to be taken into consideration. Some new schools may have to be opened, others may have to be upgraded, while all of them may have to be maintained. But a related question of *average school size* underlies this discussion of school facilities. School facilities being more in the nature of costly fixed assets and fittings, require substantial initial investment even when being provided on a minimal basis. As the size of students using these installations

increases, the per unit costs decline due to better rate of utilization. If the school operates two shifts a day or provides its facilities for use by the local community, the utilization of the facilities increases furthermore. Thus one can observe that the larger the enrolment in a school, the less would be the per unit cost, at least within a certain threshold. However, the micro-planner quite often is bound by public norms and has to have a standard minimum level of provisions once a decision to build a school has been taken. It may not immediately concern him whether it will be fully utilized or not. In view of acute resource constraints everywhere, he has to keep in mind that whatever investment is made must be effectively utilized.

There are two ways by which a micro-planner can ensure sound decisions in school-building programmes:

- (i) The design, lay-out and provision of the building should be such that it can follow a *modular pattern with built-in options* for additions and alterations. Thus, not only those classrooms and allied facilities which are immediately required could be constructed, but the plan for the total or end product could also be kept in view and the building norms respected.
- (ii) By promoting the use of *educational facilities for other educational programmes* such as adult education, skills and craft training, adult and continuing education, a micro-planner can improve the utilization of school facilities. It would also save investments otherwise required for the other programmes. More importantly, it tends to foster better intra-sectoral and inter-sectoral linkages vis-a-vis education. Here the role of the micro-planner is to be able to provide a forum where different social development inputs can be pooled together. This would be a key factor in providing better facilities to all users at reduced costs.

3.3.2 Choice of material

Another point which needs to be kept in mind relates to the materials used in the construction of school facilities. Unlike the macro-planner, a micro-planner should be able to exercise his choice in such a manner that he can use improvised/modified local materials and design. These may help the school in several ways:

- (i) To reduce the cost of school facilities.
- (ii) To help the school in acquiring a known profile to which the local population can identify itself.
- (iii) Improvisations and modifications made using local material and design can be a model for the rest of the population and they may like to emulate it.

It is felt that these factors would go a long way in bringing the community, schools, and educational planners together.

3.4 Curriculum

Curriculum is at the heart of the teaching-learning process. Traditional micro-planners confine themselves to the existing structure of education, taking the actual teaching learning process for granted. It is being realized of late that one should have a *total view* while undertaking educational planning, and plan for curriculum, textbook and other materials. Teacher education and training is also emerging as a major area for micro-level intervention.

These considerations become the more important at the micro level. A micro-planner is all specialists rolled into one. He cannot afford to let such vital aspects as curriculum and teacher training be left outside of his purview. Keeping the focus on MLPM, the curriculum issues can be divided into two categories - core curriculum which may be operative throughout the country, and local curriculum which can be devised locally to suit the felt needs, belief systems, goals and aspirations of the local community.

3.4.1 Core Curriculum

Several developing countries have set for themselves progressive goals which are uniformly shared throughout the length and breadth of their territory and among the population groups. Hence they are using educational curriculum in general, and core curriculum in particular, as an important *means of instilling appropriate values and generating a national consensus*. Since it is usually the remote and distant areas which may be beyond the main sway of the national ethos, a micro-planner has a crucial role to play.

The micro-planner has to see to it that the core curriculum is taught vigorously and sincerely. Keeping in view the fact that one of the objectives of MLPM is also to *extend the effective out-reach of education* to the backward social groups and remote regions, it is of paramount concern for him to ensure that the core curriculum is treated with the concern it deserves.

It may be interesting to note that quite often there are no specific methods to advance the cause of national curricula. But if the micro-planner is sensitive and committed to its spread, his very presence in the immediate proximity of field conditions should be enough for a better management of the curricula. It is because usually remotely-placed educational institutions do not get adequately inspected and supervised. Consequently the national norms do not get observed as well as they are expected to be.

However, it does not imply that a micro planner becomes merely an agent of the national set up. Instead, the micro-planner is also a major representative of the local interests and aspirations. It is in this role that the second aspect of the curriculum i.e. local component, comes into play.

3.4.2 Local Curriculum

The micro-planner with the help of pedagogists and curriculum developers has to prepare a portfolio of teaching-learning material which is close to the ethos of the local area and its inhabitants. The immediate local environment and the problems and challenges faced can be reflected in this curriculum.

Some developing countries are now adopting a modular pattern of curricula in which a certain section can easily be adapted to conditions and needs from one place to another. However there are two major problems which are coming in the way of its effective implementation. The first relates to the local generation of the curricula and the second concerning its administering in the schools.

As regards the generation of locally relevant curricula, there is often a lack of suitably trained and educated professionals whose services could be utilized for such a purpose. Similarly, a micro-planner may not necessarily be a curriculum expert. Hence the least that he can do in this regard is to *collect the relevant data and issues* which may be used for working out a curriculum. Because he is located in the field, it is somewhat easier for the micro-planner to single out the issues which may be considered useful for the purpose.

Secondly, it is the administering of curricula which requires some attention on the part of the micro-planner. His role in this context is going to be similar to the one suggested in the case of core

curriculum of education. That is, by the mere presence of the micro-planner in the vicinity of the school, supervision and inspection of the curriculum practice can be increased and that should add to the effectiveness of teaching.

It should be noted that as far as curriculum is concerned the most important job of MLPM is "Local Curriculum Management", namely in ensuring that the curriculum is implemented effectively. As discussed above, this needs local initiative, better guidance and control system.

3.5 Organizational and administrative arrangements

Most of the nobler and loftier aims of education, even when equipped with finances would not materialize unless specific organizational structures conducive to their achievement were created. There are at least two kinds of tasks which need to be undertaken in this context - one dealing with organizational linkages with the rest of the educational system, and second with the laying down of internal rules for the micro level educational organization to function smoothly.

It may be relevant to recall here that MLPM is conceived as an arrangement prevalent within the hierarchy of educational organizations. On the lower end, MLPM interfaces with school clusters and individual educational institutions. Towards above, it has to have close linkages with higher level educational organizations at the district, state or national level.

3.5.1 MLPM and its linkages with the system

There are three kinds of links that MLPM can have with the rest of the educational system:

- i. Dealing with *two-way flow of information and resources* between the micro- and higher levels (e.g. its relationship with the district, state and national level education). This would entail the receiving of norms for educational development, transfer of funds, core curriculum, norms regarding teachers, etc. from above. It would also imply sending up information about the progress of local education vis-a-vis the objectives of educational programmes. These may be related to extension of coverage, improved retention of the weaker sections, and apprising the higher levels about the kind of organizational linkages that may need to be fostered across sectors.
- ii. Similarly a two way flow of information would be needed to be established between the micro-planner and school clusters and individual institutions. It may be noted that *downward organizational linkages* would be addressing themselves more to actual educational activities, facilitating networking arrangements, sharing of facilities, teachers and local specific resources. Collection of information from the schools is part of this information flow.
- iii. In addition to the organizational linkage described above, a micro-planner may also act as a *conduit for two-way transfer of information* from below to higher levels of organizations and policy guidelines, plans and other directives from above to the grassroot institutions. In other words, the micro-planner acts as a vital link in the chain.

3.5.2 Extension education

Apart from extension of coverage and including more school-going children in the education system, one of the important reasons for MLPM is its ability to *relate to the ongoing development activities*

at the local level. It is felt that even in remote rural situations, education tends to be bookish and not in any way concerned with actual local development activities. This not only renders education dysfunctional but it hinders its growth also. Thus, linking education with the real economic activities of the different habitats is one of the major goals that must be attempted. It is felt that such a linkage would also reduce the problem of alienation among the educated and young school leavers.

One frequently sees nowadays educated youth shirk at physical or manual work. This causes among the parents a certain degree of resistance for sending their children to schools. Similarly, those who graduate from schools tend to seek only organized-sector white-collar jobs. It is felt that in the absence of these *extension linkages*, not only is there a mismatch between education, employment and society, but also the type of education being imparted and the type of pupils to whom it is given become irrelevant.

3.5.3 Interface with productive work

Hence it is necessary to underscore the need for extension education. As a matter of fact it is one of the strongest arguments for developing MLPM. It is at the micro level that such linkages between education and ongoing development activities can be forged. The micro-planner can promote different types of learning and training modules which can be taken up in different ways depending upon the pattern of work and work cycle in the local area. Continuing education, skill training, or sandwich courses can all be planned along these lines. A micro-planner needs to understand the major developmental and occupational activities in the local area, so that he can seek the help of appropriate specialists to promote relevant educational and training courses.

The basic idea which needs to be worked upon is that education at the micro level should help local people in *building up on the received knowledge and skills*. It is felt that by combining traditional skills with modern knowledge and its applications, it should be possible to develop an education system which will not be entirely divorced from the work ethos in the local area. Needless to say that it should be done in a manner that does not entirely rule out vertical and/or horizontal mobility. But the proposed curricular structure should be such that while it may allow the building up of received skills, it would still permit people to move into newer areas and make innovations. Thus education does not confine itself to the perceived work patterns, but that it goes a step beyond in giving shape to the work itself.

3.5.4 Societal, and cultural factors

As a logical extension of the previous argument, it can be posited that education's relationship with its clientele does not have to be confined to work and work-related activities but it should also embrace the entire gamut of social, cultural and environmental issues. In the developing countries where relationships based on economy and exchange are still to be fully developed, a lot of inter-personal transactions take place around the socio-cultural axis. The fact that these societies have several kinds of stratifications running along the languages, ethnicity, regions and race dimensions makes a given micro area fairly heterogeneous in nature. MLPM has a two fold task in this context.

- (i) To promote a certain degree of *universal world view* among the different segments of the society. The experience of several developing countries in the post-war period has shown quite amply that, sustenance of the nation state often depends on the degree to which social mobilization can be attained. But while intention regarding this end-product can be expressed from the macro level, its precise implementation and planning thereof has to be carried out at the micro-level.

- (ii) The pursuit of social cohesion and mobilization at national level does not imply that the regional or ethnic differentiations would have to be entirely obliterated or smothered. On the contrary, according to the description that has been provided, these micro traits of a *larger social reality* have to be related to education so that the latter could take roots. Without it the relevance of education to a large number of people would be lost.

3.5.5 Ecological and environmental factors

In addition to the socio-cultural factors above, there are also the ecological and environmental factors which need to be taken into account while developing MLPM. With the passage of time, technological development, growing pollution, noise and resource exhaustion, it is becoming evident that the ecological issues are going to be one of the major challenges that education is going to address. Micro-level educational planners have two kinds of tasks here.

- i) To *sensitize* the local population through education about the environmental considerations so that some of these problems could be pre-empted right at the field level itself.
- ii) To *identify* the existing ecological and environmental issues and communicate them to higher levels so that their solution could be worked out and conveyed to the local people.

For example, education about clean drinking water could save any tropical village from about 70 per cent of diseases. It may also have tremendous secondary effects for education by boosting the enrolment and regular attendance. Similarly other health, nutrition, mother-and-child-care components could be communicated to the local residents. Use of unconventional sources of energy such as wind, solar power and agricultural and animal wastes are useful examples of this genre.

Part II

Micro-planning Techniques

National plans tend to take up an average position and focus on several priority programmes which are considered desirable for the nation as a whole. However, as the field conditions vary from one region to another, the needs as well as the capability of each region to respond to these national aspirations differs. Diagnostic analysis is an important step in assessing the local region vis-a-vis these goals. The shortcomings and the deficiencies which emerge from such an analysis forms the basis of future area specific programmes.

Whether a particular region requires to go for quantitative expansion of schooling opportunities, or for provision of infra-structural facilities, or should underscore the need for an all round qualitative improvement can be properly established only after a careful objective analysis. To the extent it is possible, it is advisable to use a standard methodology for undertaking such an analysis as it would facilitate inter-regional comparisons.

Part II deals with the approaches, methods and techniques of micro-level educational planning and discusses related issues. It has eight Chapters.

Chapter 4 describes the scope and techniques of needs assessment. It outlines the type of data required at the micro-level and ways to analyse and utilize them. Data and information required for micro planning and methods of gathering them are discussed in detail in Chapter 5, which indicates the sources of data and collection techniques commonly used in micro-planning.

An area in MLPM that needs to be substantially strengthened is the analysis and use of data and information. Chapter 6 deals at length with the indicators and methods to derive them. At the micro-level, these indicators are typically used to assess the coverage of education, students flow through the educational system, and the analysis of teachers availability.

A logical consequence of analysis is the locational planning of schools and mutual linkages among them with the help of networking. School mapping as a concrete step in educational planning clearly falls within the ambit of the micro-planner who on account of greater familiarity with the local conditions, is in a better position to initiate actions in locational planning, which is covered by Chapter 7.

Implementation of the new school map in school construction and repair must follow standard procedures and norms for educational facilities. This is depicted in Chapter 8 with the help of diagrams and examples.

Chapter 9 describes the different approaches to networking of schooling. It briefly states the advantages which can accrue to a leading school and other schools if they choose to get inter-linked with each other. Some countries have developed different forms of such linkages of which the more prominent ones are described in Chapter 9.

In succession to the diagnostic analysis, the reader is introduced in Chapter 10 to the concept of project in the overall context of planning and programming. As a logical process it takes the micro-planning a step further towards the field conditions. It is important to keep in view the delicate

relationship of a project with the overall plan on the one hand and the field environment on the other. This is crucial for the achievement of the plan objectives.

A project usually involves a large number of activities. Most of these are inter-related with each other in an intricate manner. More importantly, the pattern of their interaction keeps on changing with different phases of the project. A micro-planner has not only to comprehend this interaction but also has to envisage how it may unfold. The impediments, breakdowns and stress points in this evolution have to be anticipated as much as possible so as to provide for them before hand. Mechanisms for mid-course adjustment may also be built in when designing the project in the beginning.

Programme reviewing and evaluation technique (PERT) as presented in Chapter 11 is one of the important and simple graphic method by which different activities of a project can be broken down and analysed in relation to each other. It helps in identifying the flow of activities, manpower, material and financial requirements over time. It draws attention to those activities which are likely to be bottlenecks in the implementation of the project. Such a caution can lead not only to better and closer supervision of those activities but also may involve redesigning parts of the project to obviate the potential hazards.

Needs Assessment

4.1 Needs assessment

Needs assessment is the first stage in the educational planning process at the micro level. Needs assessment at the micro-level often takes the form of a direct and comprehensive field investigation. The proximity of the micro-planner to the community is a definite advantage and this direct interface is the central characteristic of micro-planning. It is therefore essential that the micro-planner attempts to gauge, as comprehensively as possible, the social context for education, its implications for alternative educational actions and operations, and the degree of freedom and support he can enjoy.

4.2 Scope of needs assessment

Needs assessment should encompass an analysis of :

- (a) the situation of all groups and strata in the local community;
- (b) the structure and organization of the community and its growth dynamics;
- (c) the multiple social needs in terms of education, health and other services within the framework of integrated community development;
- (d) pervasive social norms, values, aspirations and attitudes that determine individual responses and behaviour;
- (e) constraints in the effective provision and utilization of educational opportunities;
- (f) community resources that can be mobilized and augmented for educational programmes; and
- (g) mechanisms for participatory planning, implementation and continuing dialogue with the community.

4.3 Techniques and tools

Whereas several techniques can be used to gather information from the community, the following two are considered the more useful.

a) Household surveys

A lot of information on the local social context can be drawn from official documents and records but these may become rapidly outdated. This information can be supplemented by the personal observations of the micro-planner and by surveying households, local bodies and individuals. A household survey can be undertaken with the help of a questionnaire to ensure that the same type of information will be obtained from every respondent. The survey could be carried out either by interview or by correspondence. The questionnaires generally have close-ended questions for factual data and open-ended questions to elicit views, issues and problems. During a survey by interview, it is important that there is a good rapport and an informal, friendly relationship between the interviewer and the respondent.

(b) Group discussions

Another technique which can effectively be used to collect information is group discussions. During small group discussions bringing together local community leaders, school administrators, teachers, and officials of related sectors, they can articulate their needs, aspirations, problems and share ideas on the development of local education. Common concerns may be jointly identified and priorities determined. Frequent consultations with community leaders, representatives of local organizations and governmental and non-governmental institutions can provide first-hand insights on the educational needs, problems and resources of the community.

4.4 Types of data

The information gathering techniques above could be employed to gain a better understanding of the following aspects:

(a) Household data

Pertinent data on households may include the following:

- i. Family size and composition - age, sex, ethnic and religious compositions.
- ii. Literacy, educational attainment, enrolment in formal or non-formal programmes, pupils' performance, attendance, repetitions, failures and drop-outs.
- iii. Household activities and division of labour including the participation of school-age children in tasks such as the collection of water, food and firewood, productive work, child-care responsibilities, and household chores.
- iv. Economic activities, earning and status, extent of participation of household members including school-age children, type of economic activity, and skill-training possibilities.
- v. Health practices - personal hygiene, sanitation, water supply, nutrition, family planning, child-care patterns, knowledge and use of health services.
- vi. Social interaction, cultural and religious activities, participation in community activities and programmes, and reasons for non-participation.
- vii. Socio-cultural norms, beliefs, values, expectations of improved quality of life.
- viii. Problems perceived in relation to own life and community problems with special reference to education.
- ix. Felt needs of individuals relating to themselves, their family, and the community.
- x. Perception of development priorities in the community.

(b) Community data

Community data to be collected should cover the following areas:

- i. Demographic data
- ii. Economic conditions
- iii. Educational status

- iv. Socio-cultural conditions
- v. Community organizations and institutions
- vi. Power structure, pattern of leadership, decision-making mechanisms, problem-solving styles, nature and level of people's participation.
- vii. Norms, beliefs, values, practices, and aspirations;
- viii. ment programmes;
- ix. Agencies and institutions responsible for field-level development and other programmes; effectiveness of organizations and institutions; opportunities for linkages.
- x. Human and material resources available in the community for implementation of programmes.

4.5 Analysis of data

After data have been collected and processed, they will be analyzed for the purpose of micro-level needs assessment. This can be done in two stages. In the first stage, analyses will be made of the target groups for educational programmes. These target groups could be:

- a) school-age children;
- b) those who have never been to school;
- c) school drop-outs; and
- d) adult learners

A community profile can also be prepared using data on:

- a) the economic, social, administrative and cultural situation;
- b) major problems and concerns of the community;
- c) educational needs with specific reference to the objectives of the national policy and plan;
- d) existing educational facilities and programmes and inadequacies; and
- e) existing development programmes: shortcomings and potential.

In the second stage, the data will be analyzed to identify gaps, examine constraints, and determine educational strategies and measures. With the corresponding assessment of local resources such as funds, manpower, material and institution-community participation, intervention strategies may be designed and enacted upon.

4.6 Utilization of needs assessment data

Following the detailed analysis of data, the micro-level educational planner can now interpret the educational needs and formulate strategies according to identified priorities. In this process, needs are translated into objectives and strategies into actions to address problems and shortcomings.

Specific educational programmes can then be developed and resources mobilized. Aspects involved in these stages will be discussed in more details in the following chapters.

4.7 Matching local educational needs with national priorities

It is most important for the micro-planner to have an accurate estimate about the needs of the local area he is serving. Only when he has a good idea about it, can he prepare a micro-plan which would, beside fulfilling the aspiration of the local people, also fit in with the national plan priorities and objectives. Usually the national plans present a fairly large number of programmes and schemes which can be adopted in MLPM. The micro-planner can exercise his choice more judiciously if he is aware about the needs of the people. In this manner, an important function of planning, namely, negotiating a match between the preferences and choices of local people with that of the national priorities gets discharged.

Data Gathering Techniques

5.1 Data collection

The previous chapters have emphatically stressed the importance for micro planner to acquire a firm grasp of the methods and techniques involved in the seven phases of information management : collection, processing, storage, retrieval, analysis, dissemination and use. Micro-planning these days rely to a large extent on timely, relevant and reliable data and information. The key to better information-based micro-level educational planning and management lies in fact at the first of these phases, namely at the information gathering stage. It is only through a well-designed and correctly executed data collection system that useful data can be obtained for further processing, analysis and support to decision-making.

5.2 Proximity to the field

Most information for the planning and management of educational activities comes from the micro level and the schools. The traditional task of local education offices is to collect information from the educational institutions and programmes in the area and to summarize the results for further transmission to higher levels.

But in most countries, decisions for the launching of data collection operations remain at the macro level. It is the central government that determines the scope, coverage, schedule, methods and instruments for data collection. Such decisions are often based on the needs of macro-level policy making and planning, which may not necessarily cater to the information requirements at the micro level for guiding implementation and day-to-day management of educational operations. This kind of approach also leaves little initiative to the local education offices to collect specific data for their own use.

With gradual decentralization, micro-level educational planners and managers are becoming increasingly aware of the fact that they cannot carry out their tasks effectively unless they are able to identify information needs, to obtain the needed information, and to make good use of the information in local educational decision-making.

In fact, the micro-level educational planner is very well-placed to take full advantage of his *proximity to the local community* to gather in a direct and rapid manner, and also more frequently, various specific informations required for micro-planning and management. Furthermore, the micro-planner will be in a very good position to collect more detailed data on local demographic, geographic and socio-economic-cultural patterns and prospects. A clear understanding of these aspects will be crucial to better decision-making regarding the relevance and effectiveness of educational development in the local area. In order to do so, the micro-planner ought to familiarize himself with the basic methods and techniques of data collection.

5.3 Sources of data

There are two main sources of data for micro-level educational planning and management: the local community and the local education system. As mentioned earlier, data from the community can help the micro-planner to assess the demand for education and training, which when matched with information

on existing school capacities could lead to more effective planning and management. The local education system is therefore the main source of education data. On the formal side, this includes all established *institutions* such as nursery schools, kindergartens, primary and secondary schools, technical and vocational training centres, teacher-training colleges, higher educational institutions, and schools of special education. As far as non-formal education is concerned, literacy programmes and adult educational and training programmes of all types that are provided not only by the education sector, but also by other sectors and agencies at the micro level, are common sources of data.

A second major source of data is the *households* which can supply data on the family background and composition of school-going children and youth, such as family income level, educational attainment of parents, type of economic activity carried out, location and distance in relation to educational facilities, etc. These data elements are crucial for the analysis of factors affecting access and retention in education.

Of course, a fundamental source of information is the *individual*. Persons directly involved in educational activities such as pupils, teachers, headmasters and administrators, and those indirectly involved such as parents, local community leaders and donors, may provide a range of information that can bring about a much better understanding of the real situation in education within the local area. Information on those persons who are not taking part in education, and on the reasons and causes for non-participation, are equally if not more important.

And then, there is the *local administration* that can supply information on the population, structure of production and of employment, manpower requirements, transport and communication networks, as well as health and other community services which have direct and indirect effects on the provision and quality of education.

It can thus be seen that the range of data that can be collected at the micro level, as evidenced in the variety of data sources and the levels of detail, greatly surpasses the usual information requirements of the macro-level agencies. It is precisely this difference that gives micro-level educational planning and management its practical and realistic advantage, as well as a truly comprehensive multi-sectoral nature.

5.4 Methods of data collection

There are many methods through which education information can be gathered. By way of illustration, some of these are described below and discussed in detail. These methods may be operated separately or in combination according to specific data needs, as follows:

- a) regular census of all educational institutions and programmes;
- b) regular and ad hoc sample surveys to collect specific data;
- c) extraction of information from routine administrative records;
- d) school, class and student records; and
- e) population censuses, household surveys, labour and employment surveys, industrial and agricultural surveys, social surveys, etc. carried out by other development agencies.

5.4.1 a) Census of educational institutions and programmes

In many countries, regular censuses of all educational institutions are conducted once or twice, and in some cases three times annually. This constitutes the backbone of the data collection system for

educational planning and management. It generally covers information on the number of pupils enrolled, teachers, finance, facilities and equipment. The collection of information is usually effected by means of formatted questionnaires or reporting forms. In certain cases such data collection also covers data on literacy classes, out-of-school vocational training and adult education courses.

In order to ensure data uniformity across the micro regions the forms/questionnaires used in the survey are designed at higher level of educational administration, say at the national or sometimes provincial level. However, it takes into consideration only the *common data needs* and thus excludes information items which may be specific to particular local areas. It is consequently the responsibility of the micro-level planner to collect *supplementary data* and to adapt and extend the regular census information to suit the requirements of micro-planning.

As regards the frequency and schedule of school censuses, they are closely linked to the educational cycle itself. For formal educational institutions following the one year cycle, there should be at least one school census per year. This could take place at the beginning of the school year. If a second school census is to be conducted, it could be useful to conduct it at the end of the school year so as to obtain information on graduates, transfers and drop-out, by comparing the year-end enrolment figures with those for the beginning of the school year.

As far as non-formal and adult educational programmes are concerned, these can also be covered periodically if they are organized on a regular basis. Similarly there are programmes which are of ad hoc nature but are conducted through the regular educational institutions. These can also be included in the school census operations.

5.4.2 b) Sample surveys

Sample surveys are based on the principle of making inferences for the whole by examining only a part that is supposedly representative. While it can save on time and resources by focussing only on a much *smaller number of respondents*, it can at the same time enable investigation to be carried out in much *greater detail* for those selected subjects. It can be used to supplement some particular information that may not have been collected through the regular census. The results of sample surveys can also be used to cross-check data obtained through the school census.

The micro-level educational planners and administrators may find in sample surveys a tool that is particularly adapted to their needs and environment. *Information specific* to the local area that cannot be collected by the standard school census questionnaire can be gathered through a sample survey. Furthermore, more refined data collection techniques involving *direct contacts* with the respondents may be adopted through this approach.

The first step in a sample survey is the selection of a representative subset of the population to be the object of survey. For example, one may choose at random 50 schools out of a total of 500 schools, exactly as one would do in drawing a lottery. This is *random sampling* in which all the respondents have an equal chance of being selected and included in the sample. But this approach may become quite unwieldy with large and widely dispersed population. The randomly selected respondents may be scattered over a wide area which may render data collection awkward to organize.

The alternative to this is to first divide the population into homogenous groups according to certain criteria, e.g. urban/rural, public/private, or by geographical, social, ethnic, or religious sub-divisions,

and then to draw random samples from each group according to the relative size of the group. This gives a **stratified sample**.

In a large survey, however, only stratification is not enough. One has to draw the sample in two or more stages. For example, one may at first draw a sample of sub-districts from each region and then select a sample of schools from the sampled sub-districts. If the students have to be sampled, one can apply a **three-staged sampling**, in which students are selected from a group of sampled schools, which are drawn from selected sub-districts which in turn are drawn from a region. This combination of methods is generally called the **stratified multi-stage sampling techniques**.

The micro-planner and administrator should note that a *judicious combination of sample surveys with the regular school census*, especially by combining the advantages of both methods, may greatly reduce the regular data collection efforts and yet yield more comprehensive, accurate, and timely information.

5.4.3 c) Routine administrative records

Regular reports regarding educational activities are usually processed and kept in administrative records. Usually there is a lot more information in the records than is required, or is used in day-to-day administration. By systematically going through these records, one can extract useful information over time. There are several advantages of such use of administrative information, namely that:

- a) It does not involve additional efforts in data collection.
- b) Administrative records as a result of compulsory reporting are more complete and accurate since disbursements are often conditional upon the returns.
- c) Micro-planner can have an easy access to these records as these are usually kept at the local education office.

There are also some limitations of these administrative records, for example:

- a) Administrative information only covers institutions directly administered and/or financed by the local authorities. It may not include those educational programmes which are run with the help of communities and the non-governmental organizations.
- b) The range and variety of data covered may also be limited.
- c) Administrative records may have certain rigid design which may not be easily amenable to analysis by the micro-planner.

5.4.4 d) School, class and student records

Most schools keep records of classes, lists of students, roll-call and attendance of both students and teachers in a systematic manner. Some may even hold *detailed information on individual students*, such as physical characteristics, family background, past academic achievements, behavioural records, and participation in extra-curricular activities. Such records are particularly useful for studying the profile of the pupils, patterns and causes of failure, repetition and drop-out, and for tracing the progress of individual student through the educational system.

The micro-planner being closer to the schools can have easy access to these detailed data and use them. The school administrators could be encouraged to keep these records according to standard formats and to regularly update and upgrade the information. In certain countries, as soon as a child enters

the educational system, a **student record** is set up for him. This record will accompany the child through the entire process of education, even when he changes schools and progresses through different levels. A great deal of information pertaining to the school children and youth needed by the micro-planner can be extracted from these records.

- 5.4.5 e) Population censuses, household surveys, labour and employment surveys, industrial and agricultural surveys, social surveys, etc. carried out by other sectors

Methods (a) to (d) above are used for the collection of data on the existing education system. The main task of micro-planner being to ensure an effective matching of local educational demands with available educational resources, should consider other aspects such as factors responsible for large out-of-school population, remedial measures for reducing drop-outs, correspondence of training structure to local production and employment patterns, and interactions with parents, adult literacy programmes, etc.

For each of the geographical or administrative areas under his responsibility, the micro-planner should have access to a host of *related information* such as past, present and future local population, its household structure, production and employment patterns, and the availability and utilization of social services.

These types of information are usually gathered by other branches of the local administration. It will be the task of the micro-level educational planner to obtain direct and rapid access to these data. If staffing and equipment permit, the relevant data should be stored at the micro-level education office so that immediate access could be made. While interacting with the other sectoral agencies, the micro-planner may also convey to them data needs from the education sector to make use of their data collection systems.

5.5 Processes of data collection

Data collection at the micro level follows basically the standard process of :

- Stage I : Identification of information needs
- Stage II : Translation of needs into data categories
- Stage III : Design and testing of forms/questionnaires
- Stage IV : Actual data collection
- Stage V : Follow-up reminders
- Stage VI : Data verification and rectification
- Stage VII : Processing and storage

However, data collection at the micro level is further characterized as a more *direct, thorough and interactive process*. The micro-planner is in frequent contact with the educational institutions, parent-teacher associations, community leaders, officials of other sectors, and above all, individuals directly involved in the educational process viz. parents, headmasters, teachers, and students.

A direct result of these contacts is a precise identification of areas of concerns and preoccupations. The micro-planner can also obtain a clear idea of the bottlenecks and deficiencies. It is at this stage that the micro-level education officer can exercise his judgement to collect additional information if required.

5.6 The questionnaire

5.6.1 a) Design of forms/questionnaires

In the event that the information required is to be collected for the first time, the data items and queries identified will have to be incorporated into forms/questionnaires for data collection, either through the school census or sample survey method. In doing so, the following considerations may be kept in view:

- i) Only data items corresponding to essential information need to be included. The coverage of such items should be comprehensive.
- ii) Data should be sufficiently disaggregated - so that patterns and internal structure could be identified.
- iii) The lay out and the design of the questionnaire should be compact and easy to follow.
- iv) Data items and classifications should either be commonly understandable, or be clearly and unambiguously defined. In the latter case, precise definitions and explanations should be provided in the questionnaire.

5.6.2 b) Field-tests

It is always useful to field-test the questionnaire before full-scale use in the census or survey. This will help in identifying problems and in ascertaining intelligibility of the instrument. Observations, reactions and the responses of those interviewed during the field-test should be studied and incorporated in the questionnaire.

5.6.3 c) Data collection

The questionnaire may then be distributed to all the respondents through mail or administrative channels, or directly administered through interview or during inspection. Section 5.7 below will deal into the approaches and techniques required in survey by interview. In the case of a census/survey by mail, deadline for the completion and return of the questionnaire should be set and displayed prominently. Address for the return of completed questionnaire should be clearly stated and preferably self-addressed envelop could be used for the purpose. Any delay in return should be subject first to reminder letters, and then to visit and inspection. In all cases, maximum guidance and assistance should be provided in the completion of the questionnaire.

5.6.4 d) Data verification

As soon as a questionnaire return is received, it should be checked for:

- (a) missing data;
- (b) errors; and
- (c) inconsistencies.

It is not unusual to come across data errors. Some of these can be corrected by the investigator. Others are of such nature that they cannot be rectified without the help of the respondents. Requests for

clarifications and rectifications, either by mail, by phone or through visit, should then be addressed to the respondent concerned, and repeated if necessary, until the required rectifications are given.

5.6.5 e) Processing and storage

Once the questionnaires have been checked and corrected, they have to be coded or entered directly for computerized processing. It is easier to store the data on code sheets rather than on questionnaires. But if one has access to computerized processing, then storing them on computers is the most efficient method. If the amount of data is small, however, one can process it manually. The availability of a variety of calculators is certainly a great relief and they are easily available everywhere. But in case there are large quantities of data, then it certainly is more convenient to process the data processed with the help of computers.

5.7 The Interview

At the micro-level, gathering information through direct contact and person-to-person interviews can be very effective for obtaining the right kind of information. Asking questions and listening to others is one of the simplest ways of finding out about something. An interview is a conversation during which an interviewer, who can either be the micro-planner himself or someone entrusted with the task of information gathering, tries to obtain information or opinions from an interviewee¹.

5.7.1 Types of interview

There are many kinds of interviews, but the following are the most common:

- i) The *structured interview* in which the person being interviewed is asked pre-set questions. This kind of interview has the advantage of being easy to conduct, it saves time and people's responses can be easily collated. The procedure has the disadvantage of confining the interview to the pre-determined questions.
- ii) The *unstructured interview* is the one in which the person being interviewed is encouraged to freely discuss a particular topic. The interviewer can use this freedom to ask further questions about issues that emerge during the interview. The disadvantages are that responses are generally longer; answers may be partially irrelevant; fewer questions might be asked in a given time; and the interviewer must skilfully guide the interview.

5.7.2 Procedures in interviewing

When conducting interviews, certain procedures may be followed. Some of these procedures are listed below:

- i) Be clear as to the kind of information being sought and the purpose of seeking it. Write out key questions. If possible, techniques of interviewing should be practised before undertaking a real one.

1 See *Destination Decisions*. Curriculum Branch, Education Department of Victoria, Australia, 1985.

- ii) Questions asked should be as follows:
 - Clearly phrased.
 - Within the person's experience and knowledge to answer.
 - Phrased in vocabulary understood by the respondent.
 - More open-ended rather than those that require only a yes-no answer (more specific questions may be asked in the flow of conversation).
 - Worded in such a way as to motivate the person to give the required information.
 - Unbiased (avoid leading questions).
 - Sequenced so that questions likely to raise antagonism are placed carefully. For example, such questions may be placed late in the interview so that the respondent's reaction does not interfere with his/her co-operation in answering other questions.
- iii) Arrange that the interview be held somewhere that is both quiet and private.
- iv) Welcome the interviewee and try to put him/her at ease. Make sure to explain clearly the purpose of the interview. Be friendly and assure confidentiality.
- v) Throughout the interview:
 - Make it clear that negative or unpopular comments should not be held back.
 - Avoid making evaluative comments or gestures - frowns, etc. Indicate interest in the other person and in what is being said.
 - Allow sufficient time for the interviewee to answer questions (Allow silent periods when appropriate).
 - If not sure about something that has been said, the interviewer should repeat in his own words for the interviewee to check understanding. It is useful, too, to try to state the feelings of the interviewee and not just his or her thoughts.
 - Whenever necessary, one should ask for examples or clarification.
 - Occasionally, summarize the statements and feelings of the interviewee to check your understanding of what has been said, or to conclude discussion on a particular issue.
 - During the interview, you may write brief notes. Some people only record one or two reminder words and write a fuller account later. The important thing is to always listen to the interviewee and encourage the person to present his or her views. With the permission of the interviewee, a tape recorder could be used. After the interview, a written record could be made of the taped material.
- vi) Conclude the interview and thank the interviewee for his/her co-operation.
- vii) Write up the interview as soon as possible after the interview.

In interpreting interview results, be aware that a respondent's answers reflect not only the question, but also how it was asked and by whom. Even the place of interview may influence the answers.

5.7.3 Advantages of interviews

The advantages of interviews are as follows:

- i) The interviewee does not have to read or write anything.
- ii) The interviewer can flexibly follow up answers to earlier questions. The interview can be adapted to unforeseen circumstances.

- iii) The interviewer can check whether questions are understood and can make sure that the interviewee's answers are clear.
- iv) Body language can be observed.
- v) Complex topics can be explored.

5.7.4 Disadvantages of interviews

There are also a number of disadvantages, namely:

- i) Interviewing takes skill. It is important to avoid biased questions.
- ii) The quantity and quality of answers varies from person to person.
- iii) Answers may be difficult to interpret.
- iv) Interviews are costly in terms of time and personnel.

5.8 Discussion groups

An alternative to the individual interviews is the discussion group approach, which may be organized at the micro-level by bringing together community leaders, parents and representatives of other sectors and local productive enterprises. Similarly, groups of headmasters, teachers and local education officers may also be formed to discuss specific educational issues. Small group discussions have the advantage of increasing the amount of exchange of information and views. On the other hand, some disadvantages of group discussions are as follows:

- a) There may be great differences in the quality and quantity of work done by various groups.
- b) Dominant, aggressive people usually have most to say.
- c) There may be a tendency to discuss a single matter or line of thought for long periods of time.
- d) There may be a tendency to express ideas as generalizations.
- e) There may be a tendency for irrelevant discussions, asides, avoidance of the real task or problem, and a focus on social relationships.
- f) There may be a tendency to leave people feeling dissatisfied because little was achieved or solved.

For a successful group discussion, the following details should be attended to :

- a) Schedule a specific topic or issue for discussion, and give advance notice to everyone who will be taking part.
- b) Arrange seating so that the distance between people is no more than two to three metres. If the group is large, break into smaller groups as soon as possible, and use groups reports to share ideas later. A group of five is ideal for discussion.
- c) Use an uncluttered room - eye contact is important.
- d) Get to work immediately by appointing a chair (leader or spokesperson) and a recorder.
- e) The leader should ask the group to look back and evaluate its work occasionally.

Indicators and Analytical Techniques

6.1 Data analysis

A major operational area that can be further strengthened in MLPM is the analysis, synthesis, interpretation and use of first-hand data and information on education available at the micro-level. As seen in the previous chapters, the micro-planner can tap on a wide range of quantitative and qualitative information on the local needs and conditions for education. It is by analysing in detail the micro-level educational demand and supply that the micro-planner arrives at ideas, decisions, means and measures to satisfy the needs, and in an efficient and effective way.

Therefore, after the micro-level data have been collected and compiled, the next step is to analyze them and to derive meaningful indicators. In the micro-level context, these indicators could help in particular to analyze the following aspects:

6.1.1 Areas of analysis

Analysis of the situation of education at the micro-level entails wide-ranging enquiries into both the internal structure, patterns and disparities within the education system as well as the multiple interactions of education with the local communities and the general socio-economic-cultural development of the local area. The analysis should aim at finding answers to a number of core questions, including:

- a) Coverage of the educational system:
 - What is the system's level of development in terms of geographical distribution of capacity?
 - Are the educational services accessible to all, and which are the under-served areas?
 - How many children and adolescents take advantage of educational opportunities offered and enrolled?
 - How many are left out? Who are they and where are they?
- b) Internal efficiency of the system:
 - How many of the pupils who entered education complete the educational cycle?
 - How many repeat or drop out and which groups are mainly affected?
 - Proportionately, how many pupils pass on to the subsequent educational level?
 - Are there inequalities in this respect? What are the disparities?
- c) Quality of the educational services and degree of utilization of resources:
 - How relevant are the educational services to local conditions and needs?
 - What resources are given to education?
 - How these resources contribute to the quality of educational services?
 - Are these resources being used in the most effective way possible?
 - How is the general learning achievement of pupils who came through the education system?

Besides looking into the past and comparing the situation with the present in trying to find responses to the above questions, the micro-planner should also attempt to look into the future, by studying possible social-economic-cultural changes in the local area in the years to come, their likely effect on the local education system, in order to plan for its future development.

6.2 Some essential facts

Before applying the computational techniques for deriving the indicators, it is essential for the micro-planner to understand that there are :

- a) *Institutionwise and stagewise statistics* - Institutionwise statistics describe statistics taking institution as a base, whereas stagewise statistics pertain to various stages, levels or sections of education. For example, enrolment in primary schools pertains to primary schools only, whereas enrolment at primary stage consists of enrolment in primary schools and also in primary stage/sections of secondary schools.
- b) *Stock and flow statistics* - Stock statistics describe the situation of an educational system at a given point of time and flow statistics describe the internal dynamics of the educational systems. For example, if one takes data on teaching personnel in a given region or institution in a particular year, the number of teachers at the beginning and end of the year would describe stock statistics whereas those who joined, left, retired, or were transferred during this period would represent flow statistics. In fact flow statistics describe the internal dynamics of the situation between stock statistics at two points of time in a particular period.

6.3 Selection of statistical units

The question as to what should be the statistical unit of analysis is a very important one. In micro-planning, it can be a whole region, or a district within the region, or a village within the district, or a school within the village. In many cases, micro-planners look at the school community consisting of a school and the community around it as the statistical unit. This is particularly relevant when one has to take into account the education needs of the community and the many interactions between education and the community. Using the school community as the unit has the advantage of helping us to analyze and highlight inequalities within the region. Even each school can be studied separately.

6.3.1 Selection criteria

The selection criteria depend upon the objectives of enquiry and our assumptions regarding the variables likely to affect an indicator's value. For example, enrolment ratios might vary according to geographical area, sex, ethnic groups or socio-occupational categories. The choice of criteria will, however, depend on a particular situation, educational level under study, educational policy objectives, availability of data, etc.

6.3.2 Choice of unit of analysis

The basic unit of analysis in the micro context would be a territorial unit within the district or region studied. The territorial unit at the primary education level should be the smallest possible one for which the demographic data are available. It can be a higher level unit for secondary education. However,

the area unit selected for micro-planning in a country will have to be adopted for analysis purposes, in addition to other lower or higher level units.

6.4 Quantitative analysis for studying the coverage of educational system

To analyze the problem of coverage of the educational system, the following two questions can be asked:

- i) Does the school network as it is now organized and territorially distributed serve efficiently the school-age population of the region and local areas? This is what is called the *accessibility of the school network*?
- ii) Do the families and their children make efficient use of the existing school network? Proximity to a school, i.e. physical accessibility, does not guarantee that children are necessarily sent to school. It is this interaction between family demand and educational supply which can be studied through various measures of educational access.

6.4.1 Measuring school network's accessibility

To analyze the problem of accessibility of the existing school network particularly in physical terms, various indicators can be studied:

- i) Distances to be travelled;
- ii) Travel means used;
- iii) Time of journey;
- iv) Domicile of pupils.

These aspects are discussed in more details below.

(i) Distances to be travelled

The main objective here is to study the physical accessibility of schooling facilities in terms of actual walking distance to be travelled by the children to reach the facilities. In some of the countries the maximum walking distance to be travelled by the children to get to the schooling facilities is defined as a matter of policy. For example, in India, maximum walking distance a child has to cover to reach the school has been defined for planning purposes as:

- One kilometer in case of lower primary level education; and
- Three kilometers in case of upper primary level.

Categories of population and walking distance should be carefully selected according to the norms prescribed in the country for walking distance and minimum size of a school i.e. threshold population for a school.

(ii) Travel means used

The availability of means of transport may lessen the problem of distance by reducing the difficulty of the journey. In practice, the two sets of data - on distance and on means of travel - are used together.

This can be analyzed in the form of a table as shown in Table 1 on the next page. The categories of distances and means of transport can be linked to the local conditions and needs.

Table 1
Enrolment by distance from school and travel means

School	Less than 1 Km.			1 to 3 Km.			More than 3 Km.		
	On Foot	Bi-cycle	Motor Transport	On Foot	Bi-cycle	Motor Transport	On Foot	Bi-cycle	Motor Transport
School A Enrolment %									
School B Enrolment %									
School C Enrolment %									
-									
-									
-									
-									
-									
School N Enrolment %									

(iii) Time of journey

Time taken for the journey is, in fact, a function of the distance, the terrain and the availability of means of transport. In this sense it may be a better indicator of accessibility, especially for analyzing the problem of accessibility in urban areas. For rural areas, the other indicators of distance and means of transport are equally important.

To use this indicator, it is not a matter of knowing precisely the time taken by each pupil for the journey, but rather of classifying them in different categories according to time required and analyzing the percentage of pupils in each category.

(iv) Domicile of pupils

Analysis of information on the location of the home of pupils for different schools in the region helps in studying the catchment area of each school. Particularly when there are no strict regulations linking the locality of the home with a particular school, parent's choice for a particular school as compared to the nearest available schools helps to indicate the popularity of an institution.

This analysis also helps to calculate more exactly the rates of admission and attendance. It is possible, in fact, that pupils in one local area may be enrolled in schools in another area. This analysis would help to avoid over-estimating enrolment in the second area and under-estimating it in the first.

6.4.2 Measuring educational access

It is the interaction between demand for and supply of education which the concept of educational access attempts to measure. Here, educational supply is represented by the network of existing schools; and educational demand by the size of the school-age population. The following are some of the indicators which are used to measure educational access:

- i) Admission or entrance rates
- ii) Enrolment ratios
- iii) Transition rates

These rates and ratios are described in more details below.

i) Admission rates

Pupils begin schooling usually at grade I of primary education. In most countries, there is a fixed school-entrance age at which children become enrolled in school. The admission rate is therefore the percentage of those reaching school-entrance age who become enrolled in grade I.

The admission rate is important for policy and planning purposes. One of the targets of universal primary education is to bring admission rate to 100 per cent. Admission rates constitute a key indicator for reflecting disparities in access to education: they may be lower for girls than for boys; or admission rates for rural areas may lag behind those recorded in the urban zones, etc.

Enrolment in grade I consists of two categories, namely:

- new entrants
- repeaters from the last year's grade I

Analysis of admission to class I is restricted to new entrants only. It is frequently found that pupils' age do not correspond to the official admission age, since both early and late entries occur. For this reason three types of admission rates are distinguished:

(a) Apparent admission rate:

This rate is obtained by dividing the total of all children entering a level, whatever their ages may be, by the official entry-age year group, the result being expressed as a percentage. For example, if one is dealing with primary education and the entry age is 6 years, the apparent admission rate would be:

$$\text{Apparent Admission Rate} = \frac{\text{New entrants}}{\text{Population 6 year old}} \times 100$$

To the degree to which there are early or late entrants the apparent rate will tend to over-estimate the real admission rate and in some cases it can exceed 100 per cent. This has the drawback of not being exact and for that reason is called 'apparent'.

(b) Age-specific admission rate:

The age specific admission rate gives a more exact idea of access. Here in fact distinctions are made among entries according to the children's ages and instead of having a single admission rate (as in

case with the apparent admission rate) one has a series of admission rates corresponding to different ages, i.e. admission rates for 5 year olds, 6 year olds, 7 year olds, etc. The admission rate for children aged 6, for example, is calculated as follows:

$$\text{6 years old admission rate} = \frac{\text{New 6 years old entrants}}{\text{Population 6 years old}} \times 100$$

(c) Cohort admission rate:

In demography the term 'cohort' is given to a group of children born in the same year. To calculate the cohort admission rate, one has to choose a given cohort - e.g. those born 10 years ago - follow it for several consecutive years and account for the members of this cohort who successfully enter school sooner or later.

In reality, children become enrolled at ages other than the official school-entrance age. This phenomenon causes inflated admission rates. In practice, many micro-planners use the enlarged admission rate which is based on age-group population covering several ages adjacent to the official school-entrance age.

ii) Enrolment ratios

The most commonly used indicator for assessing a local area's educational coverage is the enrolment ratio. This ratio indicates the proportion of children of a certain age who are enrolled. These are especially useful because they give a direct idea of enrolment as a measure of participation according to different zones and regions and make comparisons easy.

Like admission rates, enrolment ratios are also of several types:

(a) Gross enrolment ratio (GER):

These ratios are calculated by dividing total enrolment in a given educational level (whatever may be the pupil's age) by the age-group corresponding to the official age for the level, and converting the result to a percentage. If, for example, primary education lasts for 6 years and if the official entry age is 6 years, the official age-group corresponding to the primary education is the 6 to 11 years group. The gross enrolment ratio is, therefore, expressed as:

$$\text{Gross Enrolment Ratio (GER)} = \frac{\text{Total primary enrolment}}{\text{6-11 age group population}} \times 100$$

(b) Net enrolment ratios (NER):

In GER, total enrolment irrespective of age was used, which tends to exaggerate the percentage enrolled. A more precise measurement is net enrolment ratio, which takes into account only pupils of the official age-group for the level of education concerned. In the above example it has been taken as 6-11 years. The net enrolment ratio is calculated on the basis of the following formula:

$$\text{Net Enrolment Ratio} = \frac{\text{Pupils aged 6-11}}{\text{Population aged 6-11}} \times 100$$

For calculation of this ratio, data are not generally available and the information on the age of pupils is not always very reliable. It should be noted that while the gross enrolment ratio, due to repetition and admission of children below or above the official school entrance age, may exceed 100 per cent, the net enrolment ratio cannot.

(c) Age-specific enrolment ratio (ASER):

An age-specific enrolment ratio (ASER) relates the enrolment of a given age or age-group in a given year to the population of the same age in that year irrespective of grades or levels of education.

For example, the enrolment ratio for 7 year olds is obtained by making the following calculation:

$$\begin{array}{l} \text{Age-specific Enrolment} \\ \text{Ratio for 7 years old} \\ \text{children} \end{array} = \frac{\text{Pupils aged 7 years old}}{\text{Population 7-years old}} \times 100$$

This rate is a purely demographic measure, distinguishing those who are out of school from those in school regardless of the level at which they are enrolled.

iii) Transition rates

So far, only admission rates and enrolment ratios have been discussed, one may however be also interested in the proportion of those who, having reached the end of one level, succeed in passing into a higher level. This is called transition rate. For example, the transition rate from primary to secondary education shows the percentage of pupils in the final grade of primary education who are admitted to continue their studies into the first grade of secondary education during the following year. This state is calculated as follows:

$$\begin{array}{l} \text{Transition Rate from} \\ \text{Primary to Secondary} \\ \text{Education} \end{array} = \frac{\text{New entrants to 1st year secondary} \\ \text{in year } t + 1}{\text{Enrolment in final year} \\ \text{of primary education in year } t} \times 100$$

6.5 Quantitative measures to study the internal efficiency of the educational system

The internal efficiency of the education system is defined as its ability to educate the greatest number of pupils who have entered the system in a year t , in the shortest time and with the least use of financial and human resources. Generally this is assessed by following the flow of such pupils throughout the system for the duration of each level of study. Apart from the financial aspects, the techniques used to follow this flow and to measure the system's internal efficiency are given below:

- a) Pupil flow analysis i.e. promotion, repetition and drop-out rates;
- b) Theoretical pupil-flow and cohort reconstruction; and
- c) Retention (or survival) rates

These are discussed in details below.

6.5.1 Pupil flow analysis

Flow analysis of enrolment is by far the most commonly employed method to analyze and study the flow of pupils through the education system. It is often used to assess the level of internal efficiency and wastage of the system, as well as in projecting future enrolment.

Essentially, pupils enrolled at any grade in a school system can be represented as in Diagram 1 on the next page, where it is shown that enrolment in any grade consists of either promotees from a lower grade of previous year or new entrants if this is the first grade, plus repeaters from the last year in the same grade.

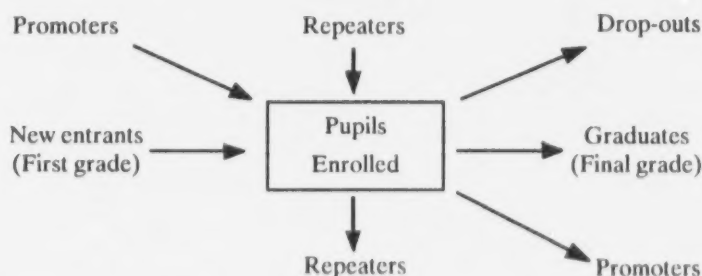


Diagram 1. Pupil flow

At the end of the school year, a number of them will be promoted to the next higher grade, while some will repeat the same grade. A few may have dropped out of the school in the meantime due to various reasons. If this grade happens to be the final grade, the promotees are actually the graduates.

Apart from these flows, the micro-planner also has to take into account pupil transfers from one local school to another school or another local area, especially when this occurs regularly and are significant in quantity.

The key flow rates such as promotion, repetition and drop-out rates are calculated as under:

i. Promotion rate

It is the ratio between the number of pupils who enter grade 'g + 1' in year 't + 1' and the number of pupils in grade 'g' in the previous year 't' expressed in terms of percentage:

$$\begin{array}{l} \text{Promotion rate (p)} \\ \text{for grade 'g' in} \\ \text{year 't'} \end{array} = \frac{\text{Number of pupils promoted} \\ \text{to grade 'g + 1' in year 't + 1'}}{\text{Total number of pupils in} \\ \text{grade 'g' in year 't'}} \times 100$$

ii. Repetition rate

Repetition rate for grade 'g' in year 't' is the ratio between the number of repeaters for the year t + 1 and enrolment in the year t in the same grade expressed in terms of percentage:

$$\begin{aligned} \text{Repetition rate (r)} \\ \text{for grade 'g' in} \\ \text{year 't'} \end{aligned} = \frac{\text{Number of pupils repeating} \\ \text{grade 'g' in year t + 1}}{\text{Total number of pupils in} \\ \text{grade 'g' in year 't'}} \times 100$$

iii. Drop-out rate

It is the percentage ratio, for a grade 'g', between the number of pupils who drop-out between year 't' and 't + 1' and enrolment in the year 't':

$$\begin{aligned} \text{Drop-out rate (d)} \\ \text{for grade 'g' in} \\ \text{year 't'} \end{aligned} = \frac{\text{Number of pupils dropping out} \\ \text{from grade 'g' in year 't'}}{\text{Total number of pupils in} \\ \text{grade 'g' in year 't'}} \times 100$$

Example: The following table explains how the pupil flow model may be constructed based on only basic data on the enrolment and repetition by grade for two consecutive years :

Year	Enrolment					
	I	II	III	IV	V	Total
1989 Enrolment	513	502	451	424	282	2172
1990 Enrolment	593	451	483	414	396	2337
Repeaters	45	22	27	22	12	128

Using the definitions of the flow rates above and the fundamental relationship $p + r + d = 1$, one can obtain these rates for grade I as below:

$$\text{Promotion rate (p)} = \frac{451 - 22}{513} \times 100 = 83.6\%$$

$$\text{Repetition rate (r)} = \frac{45}{513} \times 100 = 8.8\%$$

$$\text{Drop-out rate (d)} = \frac{(513 - 45) - (451 - 22)}{513} \times 100 = 7.6\%$$

Similarly, one can calculate p, r and d for other grades. The results are summarized in the following table:

Table 2
Flow rates in percentage

Year	Rate	Grade				
		I	II	III	IV	V
1989	p	83.6	90.8	86.9	90.6	95.7
	r	8.8	4.4	6.0	5.2	4.7
	d	7.6	4.8	7.1	4.2	0.0

In the above example it has been assumed that there are no drop-outs from the final grade. The non-repeaters are thus graduates. It may be mentioned here that these rates usually add upto 100 per cent. In the case of final grade, the promotion rate becomes the graduate rate.

If these rates are calculated by grade and by geographical zones, one can then identify the zones which have the best results from the point of view of the extent of drop-out and of repetition.

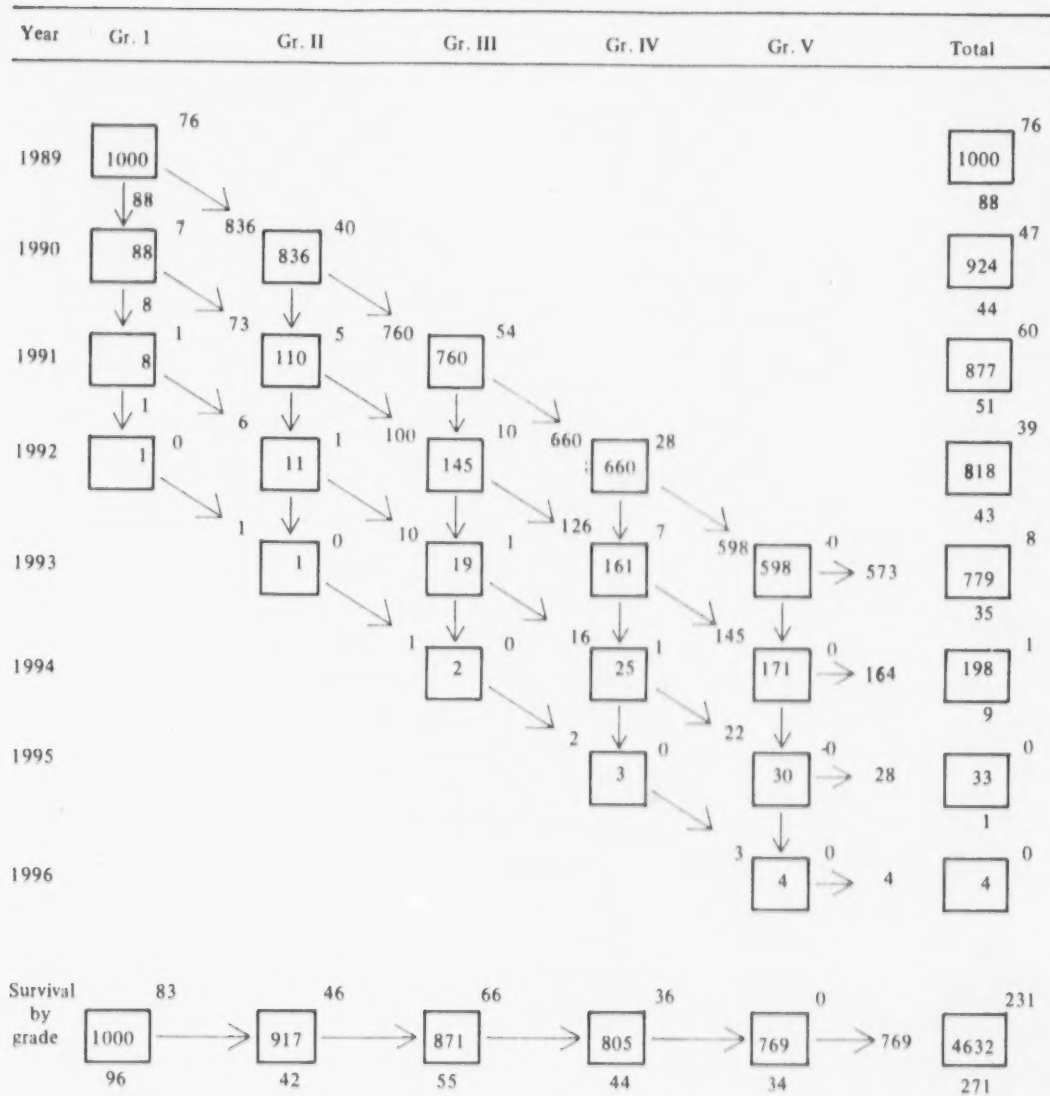
However, one must be careful in interpreting these three indicators and their variations among zones. These are, in fact, apparent rates and take no account of the possibilities of transfer from one zone to another. Such transfer, if there are any, are usually included in promotions and the drop-out is reduced by their amounts and in odd cases one may come across a number indicating the negative drop-out rate. But this obviously cannot be true. In such cases explicit recognition of transfers is indicated. This phenomenon is fairly common when one is working at the level of small geographical units. A way to eliminate such biases is to deduct the number of pupils transferred into a grade from the grade enrolment before calculating the flow rates.

6.5.2 Theoretical pupil-flow and cohort reconstruction

On the basis of promotion, repetition and drop-out rates, the pupil flow can be constructed to show what will happen to a cohort of 1,000 pupils entering grade I in a certain year, as shown in the flow chart on the next page (Diagram 2). For this a few assumptions may be made to simplify matters:

- i) Promotion and repetition rates are assumed constant throughout the period;
- ii) All pupils are considered to have the same likelihood of promotion or repetition, whether they have never repeated or have repeated once or more;
- iii) The possible number of times a class is repeated is limited to 2 or 3;
- iv) There are no other entrants to the system apart from the original 1000.

Diagram 2



Micro Level Educational Planning and Management

Year		Gr. I	Gr. II	Gr. III	Gr. IV	Gr. V	Total
1989	E	513	502	451	424	282	2172
1990	E	593	451	483	414	396	2337
	R	45	22	27	22	12	128
1989	p r d	83.6%	90.8%	86.9%	90.6%	95.7%	
		8.8%	4.4%	6.0%	5.2%	4.3%	
		7.6%	4.8%	7.1%	4.2%	0.0%	
Total output = 769 Total pupil-year = 4,632 Total drop-outs = 231 Total repeaters = 271				Average study time		Pupil-year wasted	
				Graduate	5.3	Repeaters	271
				Drop-out	2.4	Drop-outs	557
				Cohort	4.6	Total	828
				Survival rate =		76.9%	
				Years input per graduate =		6.0	
Coefficient of efficiency =		83.0%					

This process is called the reconstruction of a theoretical cohort. The following table illustrates such a theoretical cohort, considering 1,000 pupils, who entered primary school in class I in 1989.

Based on these flow rates by grades, one may simulate how 1000 pupils enrolled in grade I in 1989 progress through the primary school cycle, by assuming that these rates remain constant from 1989 onwards. Therefore, as shown in the above table, starting from the top-left and applying the flow rates for grade I calculated above, 836 of the 1,000 pupils enrolled in 1989 will be promoted to grade II in 1990, while 88 will repeat the same grade I and 76 drop-out of the school. The same type of calculation is applied to 836 in grade II and 88 in grade I in 1990 using the corresponding flow rates, and in a cascading manner to derive the enrolment, repeaters and drop-outs in other grades in subsequent years.

This *Reconstructed Cohort Method* is used in analyzing the flow of pupils through a school system and it is particularly useful as explained below, in determining the internal efficiency and wastage of this system.

Therefore, by summarizing horizontally the detailed figures in the flow model, the annual total enrolment, repeaters, drop-out for the cohort since 1989 are shown on the right hand column under 'Total'. By adding up vertically the number of drop-out for each grade, one can obtain the gradewise number of drop-outs as well as survivors where it can be seen from the bottom of the flow chart that a total of 769 (= 1000-83-46-66-36) pupils survived to grade V. Or the same total may be detained by subtracting consecutively the annual total number of pupils dropping out of the school.

Since it was assumed that there is very little likelihood for pupils to drop out of school when they survived to the final grade, the total output of the cohort is 769 graduates. Had there been no repetition or drop-out, they would have needed $769 \times 5 = 3,845$ pupil-years to complete the cycle. By summing up the total enrolment figures for consecutive years, it was found that a total of 4,632 pupil-years were actually spent to produce the 769 graduates.

The crucial indicator of internal efficiency termed as the *Coefficient of Efficiency* is therefore calculated as:

$$\frac{4362}{3845} = 83 \%$$

when a 'perfectly efficient' system will have a coefficient of 100 %

Similarly, the average number of pupil years spent per successful graduate is equal to:

$$\frac{4632}{769} = 6.02$$

In terms of wastage, $4,632 - 3,845 = 787$ more pupil-years than required were used to produce the 769 graduates. Besides the 598 who graduated within the normal five year duration, there were 164 who repeated once before graduating, 29 who repeated twice and four who repeated thrice. 234 pupil-years ($= 164 \times 1 + 29 \times 2 + 4 \times 3$) were therefore wasted due to repetition. In addition, 552 pupil-years ($= 76 \times 1 + 47 \times 2 + 60 \times 3 + 39 \times 5 + 8 \times 5 + 1 \times 6$) were spent in school by eventual drop-outs but wasted due to their non-completion of schooling.

6.5.3 Retention (or survival) rates

The retention rate shows the proportion of pupils who entered at the same time in grade I and reach grades II, III, IV etc. Apparent retention rates may be calculated thus:

$$\text{Apparent retention rate from grade I to VI} = \frac{\frac{E^t_{VI}}{t-5}}{E_I}$$

This indicator suffices if there is a system of automatic promotion. However, if there is lot of repetition it is unlikely that the pupils in grade VI in year t will be same as those who entered five years earlier in grade I. In that case the data for hypothetical cohorts calculated earlier will have to be used. The method of its calculation is explained as under:

$$\text{Retention Rate} = RR_g = \frac{E P_g^t}{E_1^1} \times 100$$

Where	RR	=	Retention Rate
	g	=	Grade (1, 2, 3)
	t	=	1.....n years
	P ₁	=	Number promoted
	E ₁	=	Enrolment in grade I in year 1

In the example given above for the hypothetical cohort:

RR for Grade II	=	$\frac{836 + 73 + 6 + 1}{1000}$	=	$\frac{916}{1000}$	= 91.6%
RR for Grade III	=	$\frac{759 + 100 + 10 + 1}{1000}$	=	$\frac{871}{1000}$	= 87.1%
RR for Grade IV	=	$\frac{660 + 126 + 17 + 1}{1000}$	=	$\frac{805}{1000}$	= 80.5%
RR for Grade V	=	$\frac{598 + 145 + 23 + 3}{1000}$	=	$\frac{769}{1000}$	= 76.9%

This last rate shows the probability of a pupil's attaining grade V. It is a useful indicator for inter-zone comparison of the system's capacity for retaining pupils.

6.6 Measures to study quality of educational services and use of resources

There are a number of conceptual and methodological problems which one has to face in developing various indicators to measure the quality of educational services. This is because there is no precise objective criteria to define the quality of education. The criterion generally used for judging the quality of an educational service is that of pupils' achievement. This leads us to ask a second question: What are the factors which contribute to the quality of education? What is it that makes one school better than the other? Is it the level of training of teachers, the teacher-pupil ratio, availability of good teaching-learning material, availability of other physical facilities or motivation of teachers? It is not possible to give any clear and precise answer to these questions because of inadequate and imprecise empirical evidence showing cause and effect relations between means used and results obtained.

Apart from the quality of education, educational planners are always pre-occupied with reducing costs. Teaching staff and the construction and maintenance of building are costly and the resources available for education are limited. Hence these resources need to be used to the optimal extent.

Accordingly an effort has been made to study various indicators which enable the quality of education or use of resources or both to be assessed. The following three types of analytical indicators are explained :

- a) Analysis of staffing conditions;
- b) Analysis of school buildings and equipment; and
- c) Availability of equipment

The first one is discussed here while the remaining two are discussed in the following Chapters.

6.6.2 Analysis of staffing conditions

The following indicators can be used particularly to analyze the teaching staff:

- i) Staff distribution by function

Functional distribution of teaching and non-teaching staff and that for inspection and supervision helps to study the adequacy and nature of distribution of teaching, non-teaching and supervisory staff, e.g.

number of schools/teachers per supervisors, adequacy of non-teaching staff etc. This distribution can also be made according to their salary scales or average monthly emoluments.

ii) Quality of teaching staff

There is no satisfactory way of assessing a teacher's quality. It is usually assumed that this is a function of such factors as:

- a teacher's level of general education;
- length of training as a teacher;
- upgrading or refresher courses attended;
- experience.

These factors do not by themselves guarantee quality in a teacher. One has to take into account the type of school in which he works (e.g. its size and location), working environment, age and motivation. The following indicators are suggested in this regard:

Teacher distribution by qualification level :

This is based on an analysis of the percentage distribution of teachers according to their levels of general education and professional training.

Teacher distribution by years of service :

The significance of the indicator 'years of service' is difficult to ascertain. It is both an indicator categorizing staff, since it may affect their territorial distribution, and an indicator by the quality of educational provision since it has undertones of a certain quality of teaching linked with the teacher's experience. The indicator can be calculated by urban and rural areas and for men and women teaching staff for comparison purposes.

Teacher distribution by sex

Here it is a matter simply of calculating, by area and by different educational levels, the percentage of women among teachers. Experience has shown that in countries where schooling of girls meets with the resistance on the part of parents, the presence of women teachers may contribute to overcoming such resistance and so encouraging the participation of girls. Also it is found that there is a trend for more women to teach at lower grades and level.

Workload of teachers

Pupil-teacher ratios and class-size are often mentioned as very important indicators of quality of education. Some of the indicators in this regard are:

Enrolment by class and average audience

These two indicators enable teaching conditions to be assessed and are indicators of quality of the educational service:

$$\text{Enrolment by class} = \frac{\text{Total Enrolment}}{\text{Number of classes}}$$

In primary education it is useful to analyze this indicator by size of school and to compare the data thus categorized with the national norms.

While the number of pupils being taught may vary according to subject and teaching method, it is useful to calculate a more complex indicator than the enrolment by class ratio so as to better measure organizational condition. This indicator is:

$$\text{Average audience} = \frac{(\text{Number of weekly class periods}) \times (\text{Number of pupils})}{\text{Number of weekly periods taken by teachers}}$$

The term "period" is used rather than "hour" since a teaching period may vary from 40 to 60 minutes. The average audience indicator is the average enrolment of the groups with which one teacher deals. This indicator can be calculated at the micro-level with the help of detailed time-table of pupils in a school.

Pupil-teacher ratio

Pupil-teacher ratio like pupil/class ratio and the average audience, is an indicator of the utilization of teachers and of their costs. In a given school or in an area comprising several schools, this ratio is usually calculated by level of education:

$$\text{Pupil/teacher ratio} = \frac{\text{Total number of pupils}}{\text{Total number of teachers}}$$

When data is available, it is useful to follow the development of enrolments, number of teachers, and pupil-teacher ratio for several years.

The pupil-teacher ratio also depends on the number of pupils per class and the number of classes per teacher:

$$\text{Pupil/teacher ratio} = \frac{\text{Enrolment}}{\text{Classes}} \times \frac{\text{Classes}}{\text{Teachers}}$$

In primary education, a teacher is usually occupied with one and the same class, so the pupil-teacher ratio is then equal more or less to the pupil-class ratio. It may, however, differ if there are half-time classes or specialist teachers.

Adequacy of teachers

For rationalization of staff it is essential to work out adequacy of staff for various subjects at the micro-level. It is possible to calculate only at institutional level and then the local situation can be worked out. The overall pupil-teacher ratio may indicate the general position in quantitative terms but there may be surplus teachers in one subject and shortage in other subjects.

Indicators and Analytical Techniques

Example Let us assume there is a secondary school with the following information:

a) *Enrolment:* 1st year = 200

2nd year = 170

3rd year = 110

Total	480
-------	-----

b) *Prescribed class size:* General subjects: = 40

Special Practical

subjects = 20

Physical Education = 80

c) *Total periods per week:* 48

d) *Average periods taken by teachers:* 30

e) *Periods per subjects:* Vary from class to class and subject to subject.

On the basis of this information actual teaching staff strength can be worked out.

The above technique can also be used for working out subject requirements of teachers on the basis of projected enrolment in future.

School Mapping and Location Planning

7.1 What is school mapping ?

The location planning of educational institutions is popularly known as "School Mapping". It involves the process of identifying the communities and places where educational facilities could be ideally located. It seeks to locate educational facilities in such a manner that school-age population is able to use the facilities to their maximum advantage.

7.2 The outcomes of school mapping

The outcomes of a school mapping exercise are:

- a) the production of a catalogue of educational needs (or learning needs) of the local community as a whole;
- b) the production of an inventory of available educational facilities;
- c) an indication of the facilities which are unutilized, under-utilized or over-utilized;
- d) the provision of guidelines as to how the available facilities can be reorganized by the redistribution of either the facilities or their users; and
- e) the provision of new facilities where they can be utilized to the greatest advantage.

7.3 The scope of school mapping

It covers the following specific areas of work:

- a) Rationalization of existing facilities by shifting, closure or amalgamating institutions;
- b) Optimum utilization of teaching and non-teaching staff by optimum utilizations of buildings, equipment, furniture etc.
- c) Provision of new or additional facilities by:
 - opening of new institutions or upgrading of existing ones;
 - providing additional teaching and non-teaching staff;
 - providing new or additional building, furniture and equipment.

If there are alternative modes of education prevalent in a region e.g. formal and non-formal or adult education programmes, then school mapping may addresses itself to all of them together. It may lead to better coordination among these various educational approaches and thus help in securing greater equality of educational opportunities.

7.4 Application of school mapping

School mapping is used both for planning and implementation of locational plans and programmes in education. For example, this technique can be used for:

- a. Universalization of primary education;
- b. Extending the period of compulsory education;
- c. Increasing access to secondary education;
- d. Restructuring of secondary education;
- e. Improving educational quality through clustering of schools;
- f. Developing a network of technical/vocational schools;
- g. Expanding higher education; and
- h. Integrated formal and non-formal education.

7.5 Factors to be considered in school mapping

A number of factors need to be taken into consideration in the preparation and regular updating of school mapping. These are as follows:

- (a) Demographic factors
- (b) Education and school related factors
- (c) Geographic factors
- (d) Economic factors
- (e) Political factors
- (f) Manpower factors

7.6 Process of school mapping

School mapping acts as a bridge between the national educational plan and its translation into reality at the local level. To begin with, the central administration regionalizes the national policy and objectives and establishes the criteria and norms to be applied such as maximum distance from home to school, catchment, etc. On this basis, drafts of school maps are prepared at the regional level, translating the regional objectives into operational terms. At the micro level, the detailed preparation of the school map takes into consideration the specific needs, characteristics and problems of local communities.

In a school mapping operation, the detailed local maps as well as the corresponding resource requirements are prepared and reviewed in an interactive manner between the local, regional and central levels and the community before they are finalized and detailed planning is done for them.

The local school maps taken together will constitute the regional map. Similarly, the national school map is composed of all the regional maps. Based on these, it is possible to test whether the objectives set by the national plan are realistic and to obtain a better allocation of resources. Diagram 1 on the next page illustrates this interactive process of school mapping at various levels.

In addition to the vertical interactions, what is perhaps even more crucial in the school mapping operation is for the micro-planner to take into account the horizontal involvement of other development programmes and administrative services dealing with housing, health, roads, social welfare, industries, agriculture, etc., so that the location of school is closely linked with the provision of general public services.

7.7 Pre-requisites for school mapping

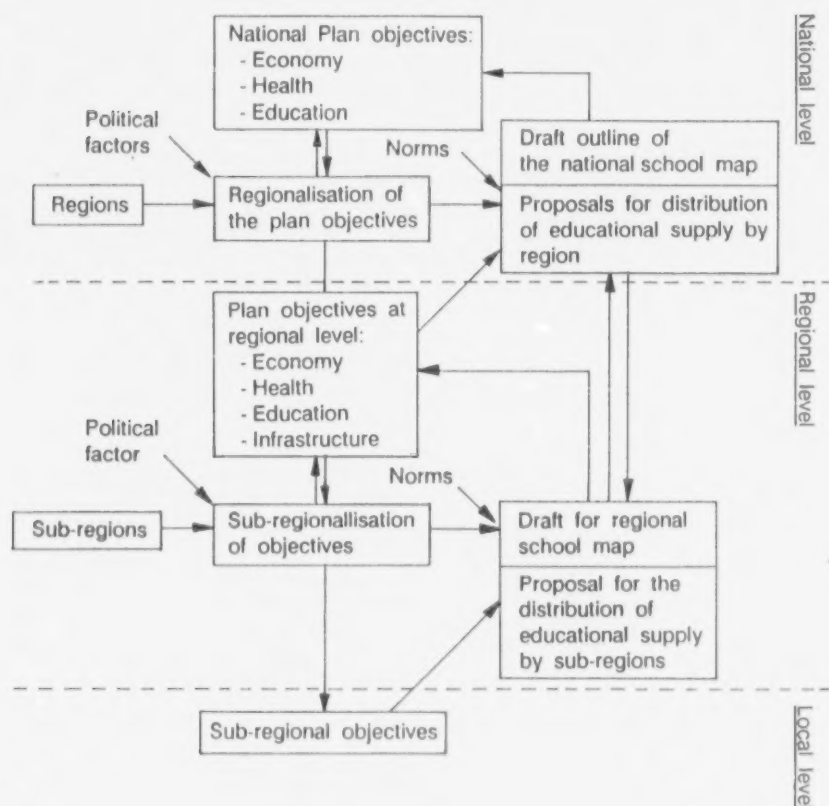
For carrying out school mapping, there are certain pre-requisites which need to be decided at the higher levels of the educational administration. These are :

7.7.1 (a) Selection of area units

Educational zones can be based on the following criteria:

- Demographic factors*: identifying population concentrations and their age and sex structure, and under-served sparsely populated areas;
- Geographical and relief factors*: hilly areas or deserts should be distinguished from plains;
- Communication network*: road, track, and water-way network;
- Social structure*: ethnic and religious minority population, special disadvantaged groups;
- Educational indicators*: literacy level, enrolment ratios, transition rates, school size etc.;
- Catchment areas* of secondary schools, etc.

Diagram 1:
Interaction among different decision making levels



According to each criterion, somewhat different divisions of a region may occur. Detailed analysis can test the various solutions and allow for adjustments. What is important is that during the interactive school mapping process, the *characteristics should be as homogeneous as possible within each zone, and as heterogeneous as possible between zones.*

According to the size of the region the number of zones selected may vary between 5 to 12 but these zones should not be too small in terms of number of schools and pupils. In big cities, schools should be grouped by districts/blocks/sections.

Another important aspect to keep in view is the relationship of the school map boundaries with that of the general development administration. For example it is common to find revenue boundaries defining the zone of a habitat. This consideration is of much more significance wherein educational planning is also accompanied by some kind of development planning. Some adjustment of boundaries and data needed for educational planning may have to be made according to requirements. Overlapping boundaries have the advantage of providing added information which may be of immense value for an educational planner at the micro level. As a matter of priority, the following specific zones may be separately identified for special attention:

- Hilly areas
- Tribal areas
- Slums
- Desert
- Specially backward areas
- Specially disadvantaged groups

7.7.2 (b) Determination of norms and standards

Before school mapping is actually undertaken it is essential to prescribe norms and standards for the provision and maintenance of educational facilities and services. Norms and standards here refer to the criteria of adequacy and appropriateness as related to the various factors facilitating the teaching-learning process. The following are some of the norms which need to be prescribed by higher levels of the educational administration for adherence during school mapping at the micro level:

- i. *Norms for provision of schooling facilities*
 - threshold population to be served by a school;
 - maximum walking distance a child has to cover to reach school;
 - minimum, standard and maximum size of a school;
 - minimum, standard and maximum size of a class/section;
 - space per pupil;
 - requirements in terms of sports, laboratory, craft and other such activities according to size of a school;
 - requirements of furniture, equipment and other materials per student or according to the size of a school;
 - recurring and non-recurring grants per student or according to the size of a school; and
 - rate of utilization of premises and equipment.

ii. *Norms for staffing pattern*

- minimum teaching and non-teaching staff requirements of a school;
- workload of teachers in various subjects;;
- requirement of non-teaching staff according to school size; and
- minimum qualification and experience requirements of the staff.

The above can be taken only as indicative list. Micro-planners may prescribe additional norms according to local requirements. In case there are already some existing norms, they should be reviewed and updated if necessary. It may be mentioned here that the prescription of the general norms is a matter of policy and is generally the responsibility of higher authorities at the State/Province and national levels. However, various local conditions/requirements may necessitate deviations from the norms. Such deviations lie within the ambit of micro-level planning of education.

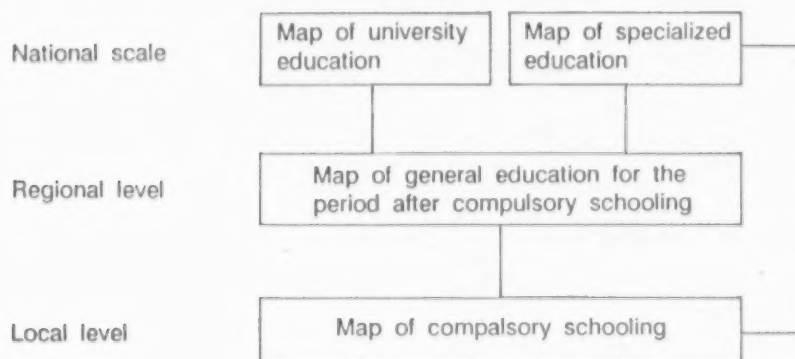
7.7.3 (c) Need for administrative and organizational support

School mapping is a technical and time-consuming exercise. The micro planner may require adequate administrative and organizational support to achieve the desired results. Trained academic and profession staff may have to be mobilized for the school mapping operation. The micro planner should particularly see to that the specificities of the local situation are amply captured in the outcome.

7.8 Rationalization and net-working of a school

Rational organization of a school map implies co-ordination of different educational networks. To draw up a map for a given educational level, one has to take into account the location of educational institutions at the level immediately below. Rationalization of a primary school map is essential for drawing up a secondary school map. Similarly, for higher secondary level school map, a map of secondary level is a must, and so on. This is illustrated in Diagram II.

Diagram II.
Co-ordination of school map



The organization of a network of institutions should satisfy certain conditions. It should:

- i. Ensure a suitable geographic distribution of educational supply and secure a balance in each geographic zone between such supply and demand;
- ii. Maintain the country's norms and standards, especially in respect of walking distance and size of schools;
- iii. Be as cost effective as possible.

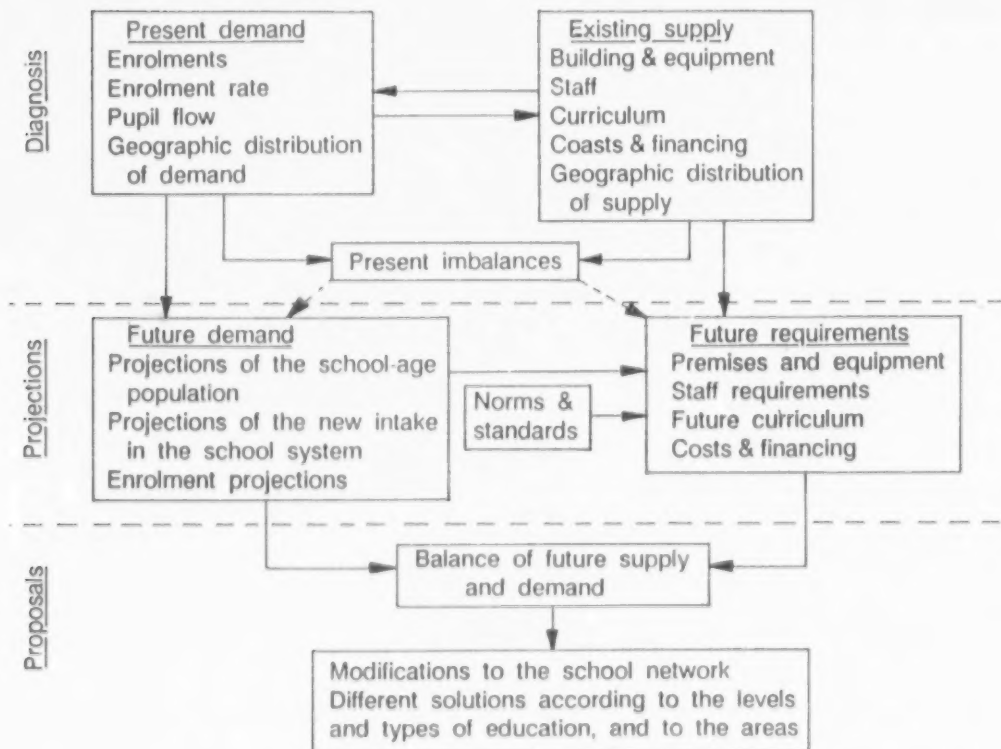
7.9 Methodological stages in school mapping

School mapping at the local level can be carried out according to the following three stages: (Diagram III)

- a) Diagnosis of the existing situation;
- b) Projection of future requirements; and
- c) Drawing up of a prospective school map.

Diagram III

Methodology stages in the preparation of the detailed local school map



7.9.1 Diagnosis of the existing situation

The purpose of school mapping is to set up a school network which will meet in the most efficient and equitable way possible, current and future demand for education. It could be geared to provide:

- equal opportunity of access to education; or
- improved teaching-learning condition; or
- more efficient use of human and physical resources (teaching and facilities).

The first step, therefore, consists in examining the present situation and analysing how the present school map meets the objectives of the educational policy. This is done by examining all aspects related to the following:

- coverage of educational system and disparities in the access to education of various population groups in different territorial units;
- educational efficiency in respect of repetition and drop-outs; and
- quality of resources in teachers and physical facilities.

This analysis will have to be done at the zonal as well as at the institutional levels.

i. *Zonal area analysis*

Zonal area analysis incorporates:

- assessing the coverage of the educational system;
- inter-zonal disparities;
- internal efficiency;
- quality;
- linkages with other developmental programmes.

ii. *Institutional-level analysis*

- use of school building and equipment;
- extent of surplus/shortage of teaching and non-teaching staff;
- use of educational space;
- analysis of unit costs.

The main purpose of these analyses is to establish a first set of detailed small-area maps according to educational zones that depict the population concentrations, existing educational facilities, topography, communication networks, catchment area of each school, etc. These maps will in the first place provide clear indications of the unserved or under-served habitations.

7.10 Making projections and drawing up a prospective school map

After a comprehensive diagnosis, it is necessary to make projections, in order to identify potential demand for education in terms of future school-age population and educational policy objectives. Simultaneously, it is necessary to draw up prospective school maps. These two stages would involve the following steps:

7.10.1 a) Estimating the number of those to be enrolled

This should be done for each target zone of residence, whether a village or a part of city. The simplest way is to estimate potential school enrolment as a ratio of total population. Having a clear understanding of the local situation, the micro-planner may assign appropriate ratios to different zones or parts of them.

7.10.2 b) Determining the capacity of existing schools and defining their catchment area

A school's capacity may be estimated on the basis of the area of the rooms used for teaching and other activities. The public regulations that may be in force in this regard, as well as the desired school norms should be kept in view. In secondary education, the normal length of time for which the premises may be used should be taken into account.

Once this capacity has been estimated for each of the potential and existing school, one can prepare a tentative list of schools to be closed, to be kept as such, extended or restructured, and lastly, of villages/hamlets not yet reached by the existing school network.

7.11 Steps to be taken in the establishment of new schools

7.11.1 Primary schools

To provide equitable access to primary education, a micro-planner should divide the region covered into:

- i. high density areas in which there could be complete coverage by well-equipped schools;
- ii. areas of moderate population density which could have complete schools, provided that a school could serve several neighbouring habitations/hamlets/villages;
- iii. sparsely populated areas for which special arrangements need to be made, such as one-teacher schools, boarding, school transport, or satellite schools linked with central schools.

Based on this, the first thing to do will be to identify the priority villages for the establishment of new schools. Such villages may either have a sizeable population but without a school, or may have been served hitherto by some distant schools. The catchment area of each new school will have to be carefully defined, by grouping and re-grouping villages until the appropriate school size is obtained.

Proceeding by repeatedly eliminating villages already covered by planned new schools, a stage will be reached when only villages with a potential school population too low to justify a complete school are left. Special arrangements should be made for the extension of education to school-age children in these villages, such as:

- i. one- or two-teacher multigrade schools;
- ii. satellite schools linked to centre schools, that provide incomplete primary education at the first three or four grades;
- iii. arrangements for school transport;
- iv. increased boarding facilities; or
- v. itinerant teachers or mobile schools.

7.11.2 b) Secondary schools

The mapping of secondary school is very much similar to and dependent on that for primary schools. The crucial linkage between the two is determined by the estimated transition rate from primary to secondary education. For pupils in secondary schools, the maximum travel distance acceptable is usually longer, and they are also in better position to make use of transport and boarding arrangements. Precisely for this reason, the location of secondary schools, especially at the second-cycle, tends to concentrate in nearby towns and cities.

Mapping of secondary schools should therefore aim at decentralizing them to the rural areas so that they:

- i. encourage higher transition from primary to secondary education;
- ii. become an important development factor in the area covered; and
- iii. provide better facilities and equipment for use by other schools in the area.

In towns, the usual tendency is to expand existing schools by taking in additional pupils. Current sites - sometimes school playgrounds - are used for new buildings; or else class shifts are introduced. There exist, however, limits to such expansions, and regulations on maximum school size should be observed. Close co-ordination with town-planning agencies is therefore needed in order that school facilities may be built and expanded when required.

7.12 Finalization, implementation and monitoring of a school map

The school map produced as stated above should not be regarded as final unless it has been considered and discussed by the various groups concerned - the central administration, local administrative authorities, community leaders and interest groups, principals, headmasters, teachers, parents of pupils etc. On the basis of feedback from such discussions the school map can then be finalized for implementation. During the implementation stage, care should be taken to ensure that inter- and intra-priorities in expansion/rationalization of facilities do get due attention.

Continuous monitoring and evaluation of these plans is also very important at the implementation stage. It should be in-built and based upon a sound system of monitoring information (see also Chapter 25: Educational Management Information System). Corrective measures whenever and wherever found necessary should be taken so as to constantly improve the effectiveness of the school network.

Planning for Educational Facilities

8.1 Phases in facilities planning

Educational facilities are generally considered to include school sites, buildings, furniture and fittings. The planning for these is a complex procedure and the cost of providing them absorbs from 10 to 20 per cent of the educational budgets in most Asian countries.

Diagram 1 gives an idea of the various steps that are included in the educational facilities planning process. In any effective programme, actions can be taken in each one of these steps, which have been broadly grouped into four categories:

- a) **Diagnosis:** stock taking of the present situation and setting national policy;
- b) **Research and Development:** arriving at building and furniture standards which are educationally satisfactory yet achievable within the funds that are available and proving that this can be done by the construction and evaluation of a prototype school;
- c) **Planning:** setting targets for the plan and drawing up a specific list of projects to be implemented during each fiscal year; and
- d) **Implementation:** obtaining land, designing each particular building and constructing it.

8.2 Analysis of the existing school building stock

By their very nature most formal educational schemes deal with vast numbers of pupils, teachers and buildings. The data for buildings is perhaps the most difficult to handle because of their lack of uniformity. They vary in size and in quality and both factors have a strong impact on their utility as a school, on their value as an investment, and on the cost of their repair and maintenance. The collection of data is an arduous process. However, diagnosis of school buildings and equipment, in terms of micro-level planning, should make it possible to:

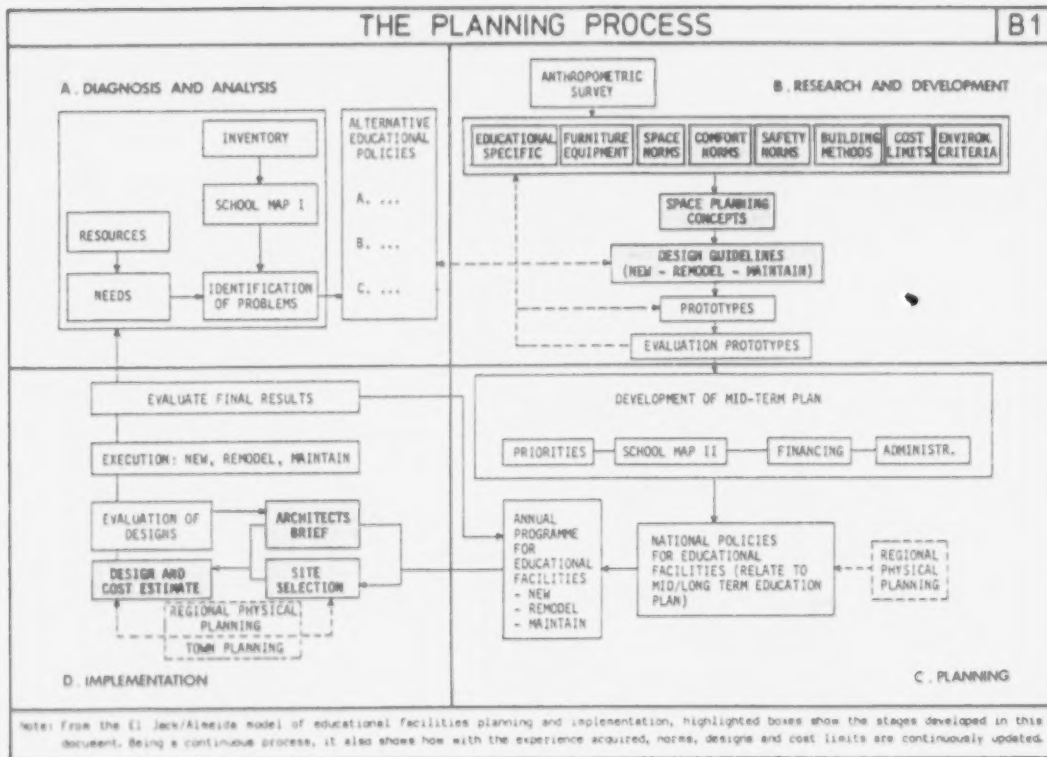
- assess the general availability and quality (material and condition) of school buildings;
- identify priority areas for action in respect of renovating or extending buildings;
- identify the areas most disadvantaged in respect of equipment available;
- assess true school capacity;
- show which schools are under-utilized or, conversely overloaded.

It may also be stated that adequacy and condition of buildings and equipment, and the degree of their utilization, should be made with reference to national standards. If national standards are not available, then the national average could be taken as a norm for certain purposes. In regard to the international standards, these can be found in relevant Unesco publications¹.

The following selected indicators can be used for this purpose:

1 Unesco, *Alternative Building Designs for Universal Primary Education in Bangladesh*. Unesco Regional Office for Education in Asia and the Pacific, Bangkok, 1981.

Diagram 1
Steps in the Educational Facilities Planning Process



A) Use of premises

Arrangements should be made for premises and equipment to be used to the fullest extent possible by both school pupils and out-of-school groups. The time for which school premises and sports facilities are used may also be increased by making them available to the whole community.

a) Indicators of use of primary school premises

In extremely broad terms, one could obtain some idea about the use of primary school premises by looking at the percentage of schools which work double shifts, and the number of rooms which are used for double shifts in these schools.

b) Indicators for secondary schools

Three indicators can be calculated for assessing the use of secondary school premises:

- **Time utilization rate:** It compares the periods for which the premises are actually used to the theoretical durations of use:

$$\text{Time utilization Rate (TUR)} = \frac{\text{No. of periods actually used}}{\text{No. of periods for which use is theoretically possible}} \times 100$$

For example, if in theory each room can be used for 48 periods a week and if it is occupied for 24 periods only a week, the TUR is

$$\frac{24}{48} \times 100 = 50 \%$$

This means that in theory it would be possible to double enrolment without having to build more rooms. However, in practice it has been observed that due to contingencies of time-tabling, it is difficult to increase the TUR rate beyond 80 per cent.

The drawback of this rate is that it gives no indication of how far room space is occupied, and hence another indicator is calculated. That is:

Space utilization rate (SUR): It compares the average size of the groups using a room with the rooms capacity:

$$\text{Space Utilization Rate (SUR)} = \frac{\text{Average No. of pupils per group}}{\text{Room Capacity}} \times 100$$

For example a room is built to accommodate 30 pupils is, on average, occupied by only 15, which gives a SUR of

$$\frac{15}{30} \times 100 = 50 \%$$

Overall utilization rate: When the above two rates (TUR and SUR) have been obtained, it is possible to calculate overall utilization rate (OUR) which combines the time and space utilization rates:

Overall utilization rate (OUR)

$$= \text{TUR} \times \text{SUR}$$

$$= \frac{\text{No. of periods used per week}}{\text{Theoretical No. of periods per week}} \times \frac{\text{Average No. of pupils per class}}{\text{Room capacity}}$$

If we take, for example, rates already calculated to work out OUR:

$$\text{OUR} = \frac{24}{48} \times \frac{15}{30} \times 100 = 25\%$$

This is a rate which should be raised to the highest level possible for ensuring the best use of premises.

B) Adequacy of premises

In secondary schools, the adequacy of premises and the basic space standards and requirements can be worked out on the basis of subject periods and accommodation needs, from Table 1 below:

Table 1. Area of building required for secondary education

Type of Accommodation	Area per student m ² (Unesco Norm)	No. of Students per Section	Unit area in m ²	No. of Units Required	Total Built-in Area Required
a) General classrooms	1.7	48	68	12	816
b) Science Labs	3.0	20	60	2	120
c) Storage room for Lab & Equipment	1.2	20	24	2	48
d) Home Science Lab	4.5	20	90	3	270
e) Industrial Art Workshop	4.5	20	90	3	270
f) Multi - purpose	1.0	120	120	-	-

The above table gives the following summary results:

Existing Built-in area in the school 1,320 m²

Total Built-in area required for the secondary school 1,524 m²

Additional built-in area needed 204 m²

The calculations as shown above have to be made at each institutional level and then compiled at the regional level for general inter- and intra-regional variations in terms of extent of adequacy and shortage of school premises. This technique can also be used at the micro-level for working out projected requirements of accommodation on the basis of future enrolment forecasts.

8.3 Design of school buildings

A good starting point for introducing the subject is to review some common complaints concerning physical facilities for education (i.e. buildings, furniture, fittings and equipment). It will be useful to use the questions under each complaint as an opportunity for defining and summarizing one's own preliminary views on related issues.

Complaint I: Physical facilities are of poor quality or they do not house in a proper way the activities for which they are designed.

If one is in general agreement with this assessment, it could be on account of any of the following weaknesses:

- The size of the classrooms is so standardized in a uniform way that variations in enrolments are not taken into consideration. This leads to overcrowded classrooms alongside those which are under-utilized.
- No provision is made for specialized or vocational teaching (i.e. lack of working areas in classrooms, of workshops, laboratories, storage space, etc.)

- c) Rigid layout of rooms and construction methods hamper further adaptation to evolving needs (i.e. introduction of vocationalization) and changing educational methods (i.e. small group teaching).
- d) Furniture and equipment are of poor quality, functionally unsuitable or insufficient.
- e) Lack of imagination in both the general layout of rooms and furniture design leads to the provision of under-utilized specialized rooms, whereas a more imaginative approach (i.e. general rooms appropriately connected with small specialized working areas; mobile furniture) could have led to fuller utilization.
- f) There is a waste of space and money in providing for lobbies and corridors for circulation purposes only.
- g) Thermal and physical comfort is not ensured through bad orientation of buildings due to a lack of study in sun-shading, cross-ventilation, proper lighting, etc.
- h) Construction materials are of poor quality or not properly chosen.

Complaint II: *Bad quality of school-buildings is due to the lack of skilled architects, or, more precisely, of designers specialized in the field of educational facilities and fully acquainted with educational issues, curricula and teaching methods.*

If one is in general agreement with this assessment, one of the following steps can be recommended.

- i. In case the Public Works Department (PWD) is responsible for the design and construction of school-buildings in the country,
 - a) To set up a mechanism allowing for a dialogue between the architects of the PWD, the educationists and administrators of the Ministry of Education and the users of the facilities, namely, teachers.
 - b) To transfer the responsibility for design and construction of school buildings to a special unit to be established within the Ministry of Education.
- ii. In case a special School Building Unit has been already established in the country within the Ministry of Education,
 - c) To staff it properly if it is understaffed.
 - d) To improve the dialogue with educationists.
- iii. And in either case,
 - e) To improve other administrative connections where gaps occur such as between the design of buildings and the design of furniture and equipment, where co-ordination is necessary to exploit their mutual reinforcement.
 - f) To establish specialized courses in school building design in the schools of architecture in the country.
 - g) To set up a special research unit on school buildings in building research institutions where educators would collaborate with architects and designers.

Complaint III: *Bad quality of school building is due not only to the lack of skilled architects, but also to the fact that educational administrators, educationists and teachers are not acquainted with architectural problems and are not really informed of the possible ways in which architecture can serve their needs. Therefore no fruitful dialogue with architects is feasible.*

In case one is in general agreement with this complaint, one of the following actions could be suggested.

- a) To introduce a course dealing with the use of school buildings and sites in teacher training colleges, which might be taught by a team of teacher educators and architects.
- b) To organize visits to schools by teams composed of specialized architects and educational administrators for the purpose of reviewing the physical facilities and their optimum use by teachers.

It should be noted that we have left aside another important complaint "The poor quality of schools is due to the lack of money". But this question is related to problems discussed in other sections of the handbook. In the construction field, the involvement of the local community in building is of course an important factor and should be encouraged. But in such a case, the local community would have to work according to some guidelines likely to be produced by architects/educationists.

8.4 Educational considerations

To take the example of the design criteria used in school construction programmes under the Universalization of Primary Education (UPE) in Bangladesh, from existing data we know that class size might be as large as 60 pupils but it may be as few as 7 pupils. Though this will change once the UPE programme is implemented, the situation requires the continued use of open hall schools and movable furniture. Only in this way can variable size classes be accommodated with students being evenly distributed throughout the building. It is also known that on the average 51 per cent of the students will be in grades I and II and that the schools will function on a split shift with these two grades attending in one shift with the remaining three grades attending during the other shift. This can be graphically described as the flexibility requirements for indoor teaching space in a typical small school as shown in Diagram 2 below.

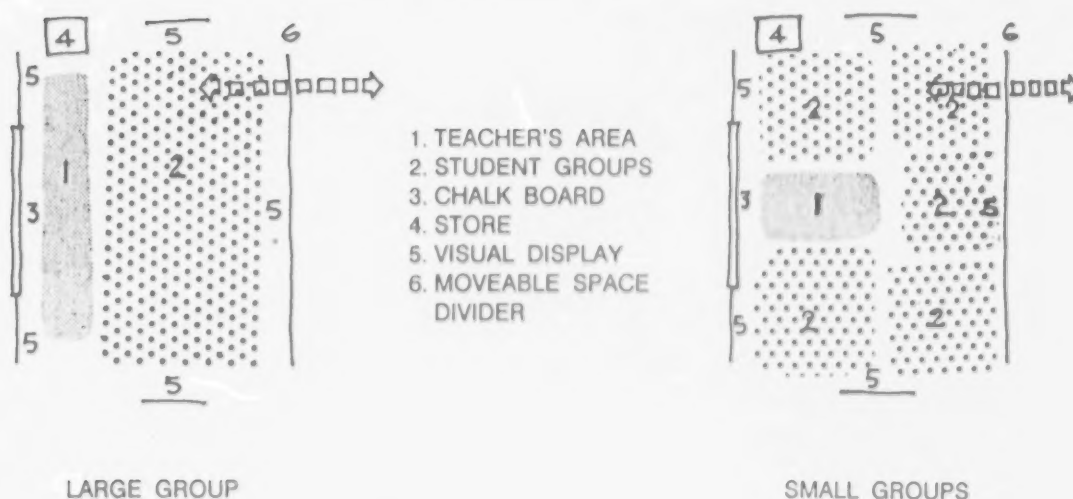
Diagram 2.

Internal flexibility requirements



It has also been noted when dealing with teaching content and methods that while typically students in a class are arranged in a single large group, there are activities in the curriculum which will require the reorganization of these large groups into a number of small work groups. Furthermore, from the curriculum the basic furniture needs for each class can be described. These two sets of considerations are incorporated into Diagram 3 on below which illustrates the functional requirements for indoor teaching.

Diagram 3
Functional Requirements for Indoor Teaching



8.5.2 Anthropometric factors

The average standing height of Bangladesh children are listed in Table 2 below. These in turn have been transformed into the critical dimensions for design of furniture and spaces as in Diagram 4.

Table 2.
Standing heights of pupils of Bangladesh between 5 to 12 years and mean standing height

Age	Boys		Girls	
	cm.	inches	cm.	inches
5	104	41	107	42
6	114	45	112	44
7	117	46	119	47
8	122	48	122	48
9	127	50	124	49
10	132	52	132	52

Age	Boys		Girls	
	cm.	inches	cm.	inches
11	137	54	135	53
12	140	55	140	55

i) Mean height of age group 6 to 7

Boys : 115.5 cm. 45.5 inches

Girls : 115.5 cm. 45.5 inches

ii) Mean height of age group 8 to 10

Boys : 127 cm. 50.0 inches

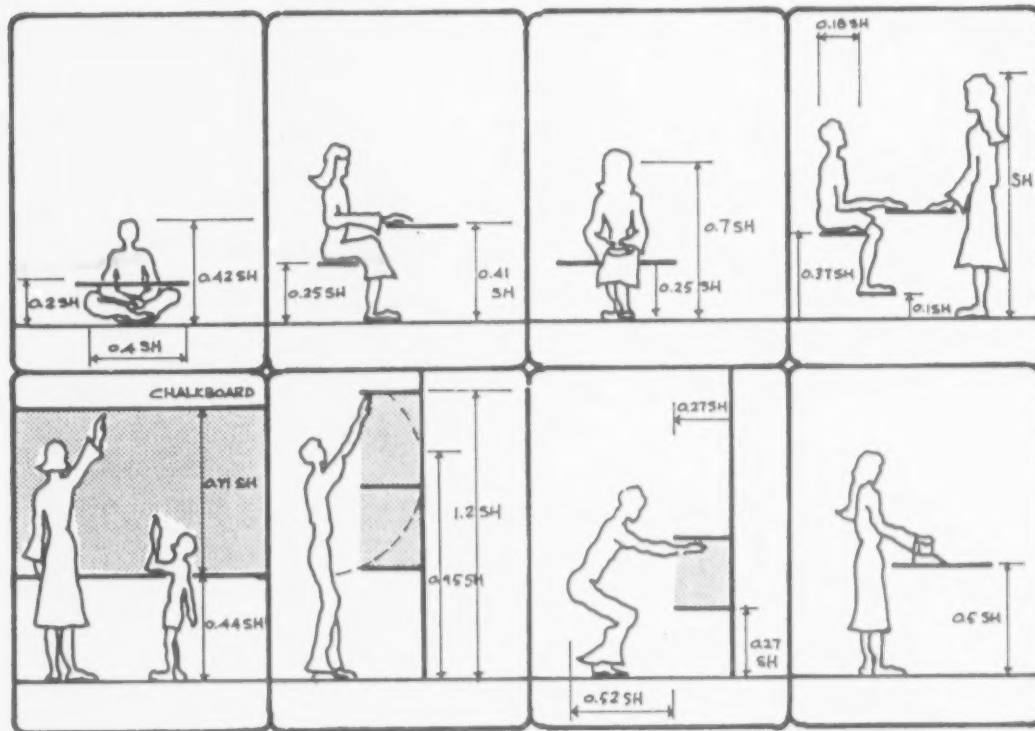
Girls : 126 cm. 49.6 inches

Because of the split shift system, both large and small children will use the same furniture. For this reason it is suggested that there be only one size of furniture.

In the case of tables, this can be accommodated by providing a foot rest for the smaller children. For the low bench, a foot rest can also be provided for small children which can double as a book shelf for the older boys and girls. The low bench should be so designed that it can be placed at least partially under the table. This will allow for ease in rearranging the furniture and cleaning the classrooms.

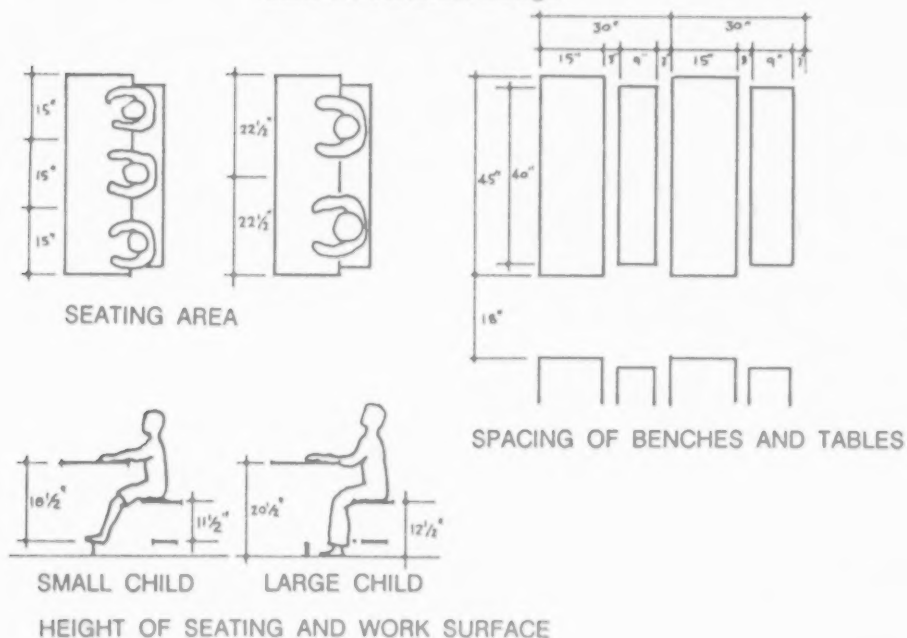
Considering that each table will be occupied by 3 pupils if all are attending class, but that they may also frequently be used by only two students due to variable class size and absent students, tables should be designed so that they can efficiently accommodate either two or three pupils. This is illustrated in Diagram 5 on page 86.

Diagram 4
Design Proportions and Dimensions Based on Body Sizes



Proportion of Standing Height	Design dimensions in inches		
	6-7 years	10 years	Adult
0.15	7	9	-
0.18	8	9	-
0.20	9	10	-
0.25	11.5	13	16
0.37	17	19	-
0.40	18	21	-
0.41	18.5	21	26
0.42	19	22	-
0.44	-	-	28
0.50	23	26	-
0.70	32	36	-
0.71	-	-	45.5
0.95	-	-	61
1.00	45.5	52	-
1.20	-	-	77

Diagram 5
Basis for Furniture Design



8.6 Classroom layout

Following from this dimension classroom width has been determined at 19' 6" offering the possibility of accommodating 4 tables across the width of the classroom or their rearrangement for small group work as shown in Diagram 6.

The area per place for various sized classes is shown in Diagram 7.

Diagram 6
Classroom Furniture Arrangements

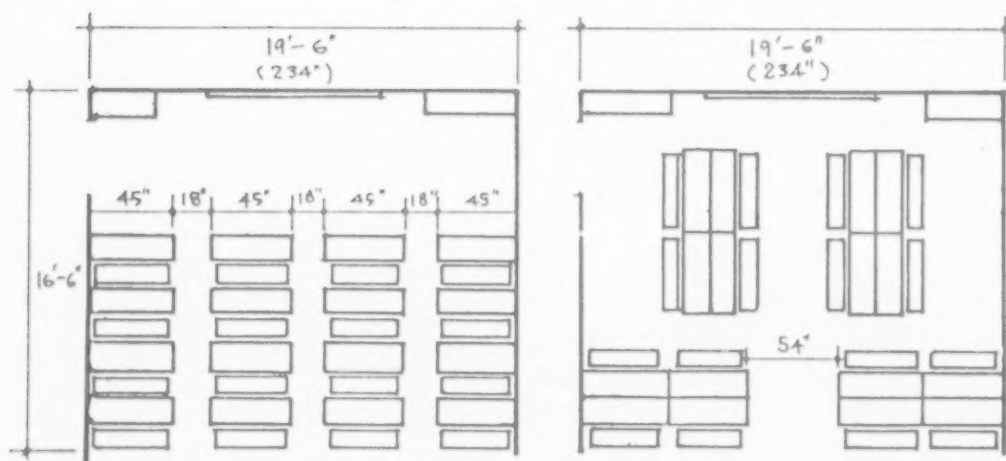


Diagram 7
The Area per Place for Various Sized Classes

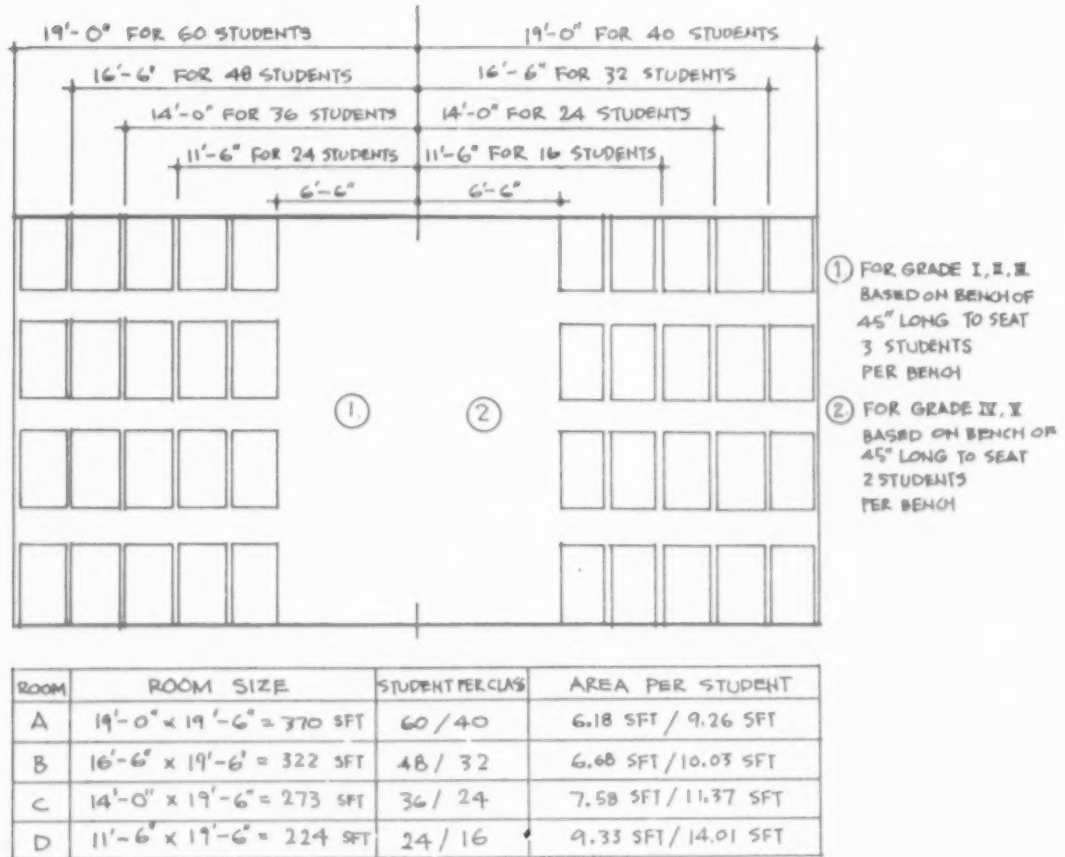
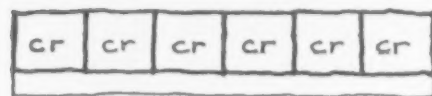
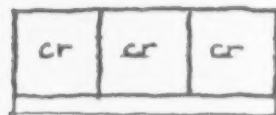


Diagram 8

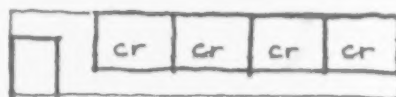
These free sketches (not to scale) represent the plan views of primary schools, usually rural, that have been built in the countries listed. The existence of classrooms comprising a row of cells in uniform size in a single building would suggest that the number of children in each space is the same. This, particularly in rural areas, would rarely be so. Architectural solutions can easily be found to avoid the waste of money resulting from building space that is not required.



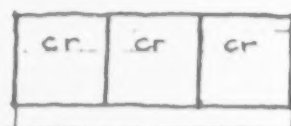
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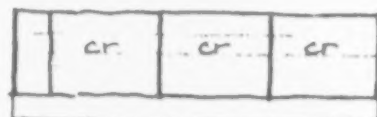
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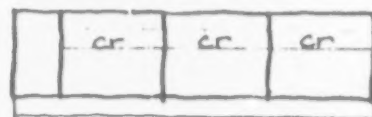
IRAN



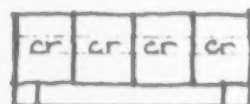
LAOS



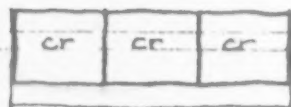
MALAYSIA



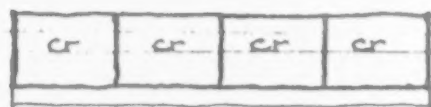
NEPAL



PAKISTAN



PHILIPPINES



THAILAND

8.7 School activities as the basis

The design of a building obviously involves a clear understanding of the *activities* that it is to house. Educational building design is no exception to this truism. However, looking at the sort of accommodation which is generally provided in most of the countries of the region (see Diagram 9) it would appear that *this concept of "activity" as a basis for design of schools has been abandoned in favour of the less imaginative concept of "classroom"*. With the result, school buildings are simply composed of a row of cells of *uniform size*.

Even at the educational planning level, the needs are mainly (if not only) expressed in terms of hundreds of thousands of "classrooms" to be provided. The magnitude of the needs and a shortage of school building designers have led to this considerable uniformity. Its impact is reflected in a comment by the Prime Minister of Singapore: "... that in the last 10 to 15 years, the mass production of schools and teachers by the Government has produced teachers as anonymous, faceless and listless *as the institutions that now house them...*".

It is felt that the concept of classrooms as the cornerstone for the design of school buildings is a very poor and simplified notion which leads to unsatisfactory and costly results. It should be replaced by a more imaginative approach, taking into full account.

- a) The variety of *activities* for which *working places* (rather than classrooms) have to be provided; and
- b) The variety of *the size of pupil groups* a school is to house.

It is not to say that there would not be classrooms in the "innovative" school buildings being suggested, but that the current concept of a uniform classroom must undergo change. A few suggestions are put forth in this regard.

- a) First, the size of rooms should not be uniform but adapted to the enrolment or class size of each grade. To build 40-place classrooms for each of the six grades in a primary school is a waste of money, for it is quite clear that it will be some years yet before the drop-out problem is completely solved. A very interesting way of achieving this is to use movable partitions. Such a specially designed partition unit comprising a space is illustrated in Figure 9. A study² on the sound diffraction problem of this type of layout has shown that the adjacent classes do not disturb each other, provided that a few simple rules are observed (see Diagram 10).

2 Chaudhury N.K.D. *Sound diffraction around movable partitions in teaching spaces*. Education Building Report No. 1., Bangkok, Unesco Regional Office for Education in Asia, 1973.

Diagram 9
Movable division unit and sketches showing flexibility
in optional placement for varied school functions

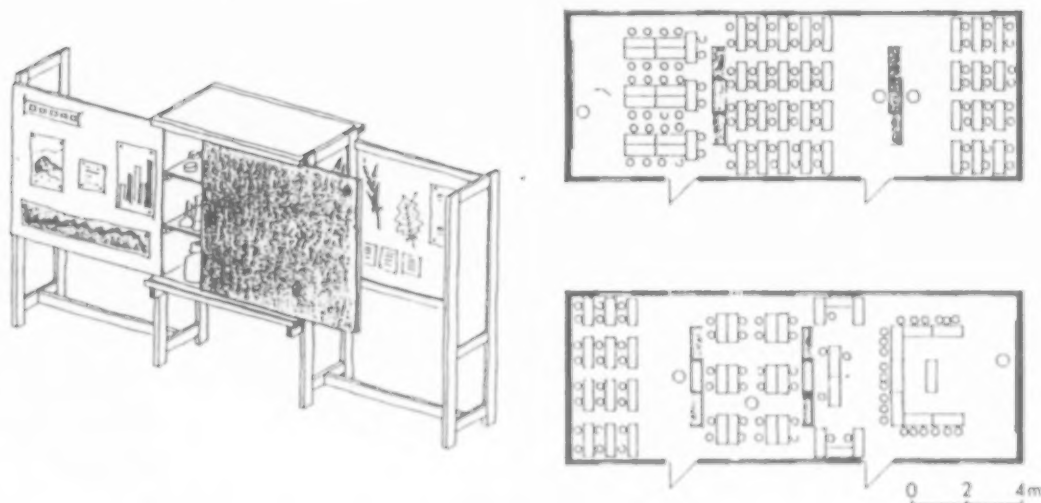
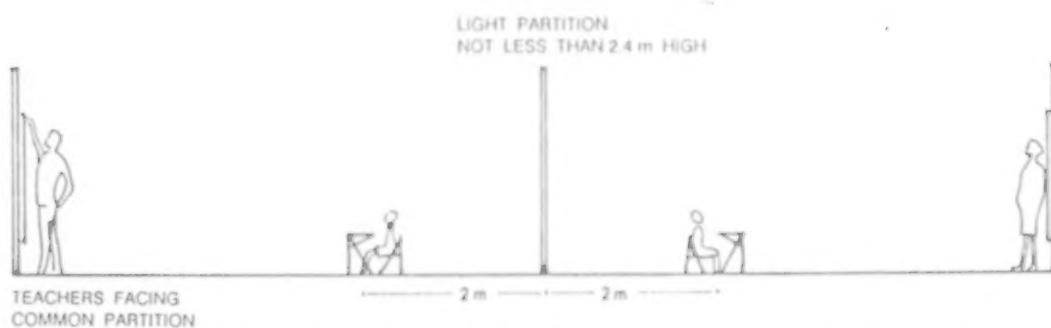
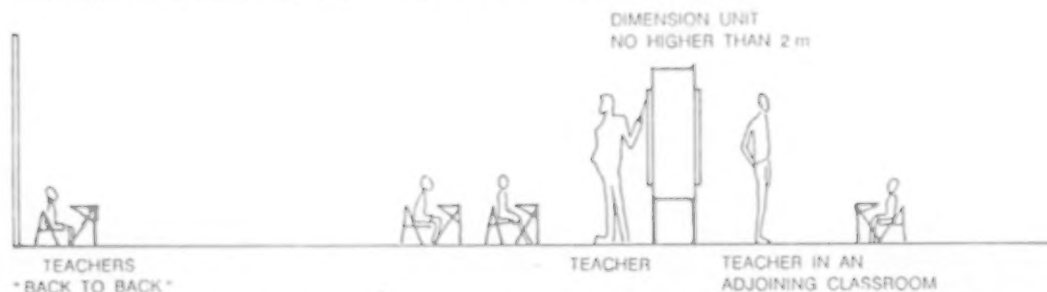


Diagram 10
Acoustical conditions for open hall schools



where teacher in adjacent class-rooms are teaching "back to back" on either side of a partition, then the partition or division unit need be no higher than 2 metres in order to keep intrusive sound at a reasonable level. (Note: the maximum height for the top of the chalkboard is 1.87 metres).



where teacher are in adjacent class-rooms with chalkboards on walls facing the common partition then the partition should be not less than 2.4 metres high. Moreover, in such a situation the students in each class-room who are most distant from their teachers should be seated not closer than two metres from the partition.

- b) Even if the chalk and talk method of teaching is still largely used, and the classroom remains of conventional shape, consideration should be given to alternative methods of teaching (e.g. pupil-centred project work) or to particular requirements of small rural multi-grade schools which may affect the type of furniture to be provided and consequently the size of the room (see Diagram 11).
- c) Priority consideration given to the activities of a class may result in a series of layouts quite different from regular rows of traditional classrooms. Interesting illustrations of alternative layouts as adopted for village schools in Afghanistan are in Diagram 12.
- d) It is also necessary that as much as the constructed area, including circulation space, as possible, is utilized for some educational activity so as to ensure *use efficiency*.

These suggestions show clearly how rich is the range of possibilities open to an imaginative approach of school building design and why the persistent concept of "uniform classrooms in a line" needs to be abandoned.

8.8 Improving the existing facilities

As noted above, the main challenge in many UPE schemes will be to improve existing facilities. Here the needs can be viewed as those relating to the building structure and those which relate to furnishings.

On the building structure side, one will want to be sure that the roof is water tight, that the floor is even and dry, that window openings are sufficiently large to let in the required light and that interior wall and ceiling surfaces are painted a light colour in order to improve lighting.

Changes in furnishings can greatly help teachers to transform a school from one with a traditional teaching pattern to one which takes account of recent educational research and transforms it into modern teaching methods. In particular the trend should be away from students working in a single big group to working in small groups and individually.

Two additional aspects are of particular relevance to the developing countries. They relate to acoustics and thermal comfort. These aspects should not be neglected in any effort to improve educational facilities.

8.8 Availability of fixtures, fittings and equipment

There are several indicators which can be used to assess the availability of the furniture, fixtures in the buildings, teaching aids used by teachers, educational supplies used by the pupils etc. Some of these are listed below:

Diagram 11
Variations of teaching methods

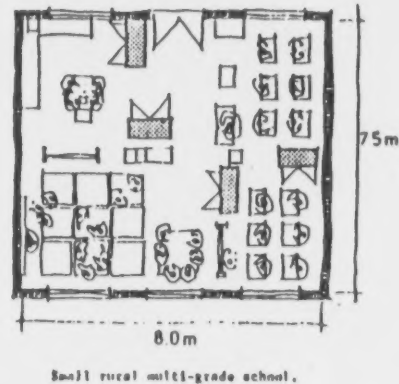
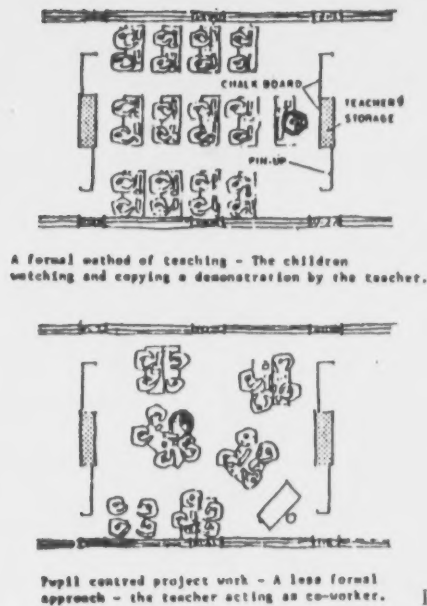
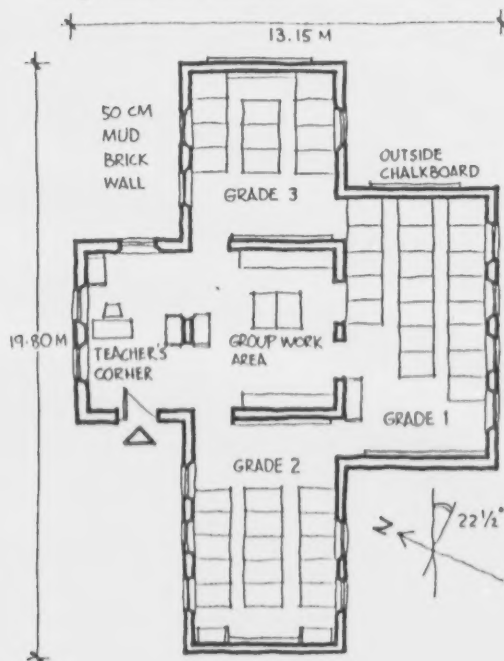
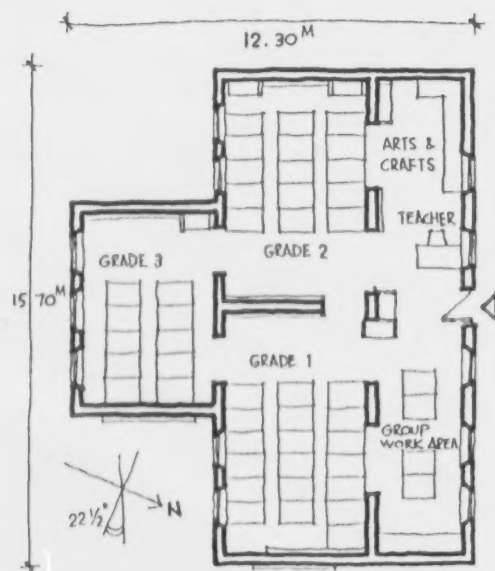


Diagram 12
Afghanistan village schools

Village School Scheme 1



Village School Scheme 2



a) *Equipment of premises* (including furniture)

Percentages of:

- schools without electricity and running water;
- schools without sanitation facilities
- schools without a sports ground;
- schools with staff quarters;
- classrooms without pupils' desks
- classrooms without teacher's table
- pupils seated (= $\frac{\text{No. of seated places}}{\text{Enrolment}} \times 100$)

b) *Teaching equipment*

Percentages of:

- schools without blackboards
- schools without enough geographic globes or maps
- schools with library

c) *Pupils textbooks and supplies*

Percentages of classes in which:

- pupils having enough textbooks, exercise books or slates, pencils;
- pupils having no textbooks, exercise books, pencils

d) *Other percentages* like schools having arrangements for mid-day meals/lunches etc.

It may also be useful to make the above analysis by size of school since it is often the smallest schools which have the least teaching-learning materials.

8.9 Micro-planning of educational facilities

In relation to the planning of educational facilities, a micro-planner has multiple roles, namely, as an analyst of present situation, as an analyst of future needs, as an allocator of resources and finally as a formulator of projects.

As an analyst of the present situation, the micro-planner should:

- a) Initiate and organize the gathering of data on the present situation so as to allow *not only a quantitative analysis* (number of schools, enrolment, etc.) but also a *qualitative one* (state of maintenance of the buildings, potential of use and of reconversion of the facilities, plans, etc.)
- b) Analyze, eventually by setting up a joint study with specialized designers and teachers, to what extent the existing facilities meet the requirements of sample cases, preferably of schools built according to standard plans in general use.

As an analyst of future needs, the micro-planner should:

- a) Study in collaboration with specialized designers the consequences and implications in terms of buildings of any major educational change, such as:
 - curriculum - subject area changes
 - curriculum - subject content changes
 - curriculum - changes in teaching methods
 - change in the structure of education system

- increased organized use of educational facilities for informal and non-formal educational activities and community services.
- b) On the basis of the knowledge of the present situation and using the outcome of the study mentioned under (i) above, establish working cost norms taking into consideration not only the variations in size and location of schools, but also the demand of innovations in content, methods and technology. These norms should provide for all the innovative features which have been discussed earlier like movable partitions and equipment and mobile furniture, etc. To work out a set of more realistic per pupil place cost norms, the planner and designer should together carry out a series of representative sample studies with experimental designs.

As an allocator of resources, the micro-planner should:

- a) Use, as far as school construction is concerned, working cost norms based on in-depth studies.

As a formulator of projects, the micro-planner should:

- a) Take into full account all elements of a given particular situation (i.e. available facilities, realistic enrolment's increase figures, etc.)
- b) Take the initiative to depart from the conventional concept of "uniform classrooms". The reason is that the space provided and the resultant costs are related to the curriculum, its content and methods, to the structure of the educational system and to the policies that affect the system as a whole. Design of school buildings for change is needed as well. Just as the architects become more and more conscious of the special characteristics and demands of educational systems and attempt to place their imaginative resourcefulness at the disposal of educational planners and administrators, the latter, too, must develop the skill to spell out *their needs in functional terms* (rather than number and area of rooms). An educational planner or administrator should be able to *prepare a comprehensive educational brief on which the architect is able to work out the draft designs*.
- c) Replace the present working norms based on global calculation of enrolments and class area by individually prepared statements of *specific requirements from grassroot level*. That individuals and organizations are themselves adaptable should be stressed, so that in working out schemes for adaptation, something may safely be left and, indeed should be left to their resourcefulness and ingenuity. Although design has a great deal to offer, *management has a most important contribution* to make in exploiting the opportunities for change within a building through its organization and use of the available facilities.
- d) Stimulate an imaginative research from the architects and the users by setting up *target and maximum costs* which, coupled with the functional and "flexible" educational brief referred to above should lead to the best possible use of the available resources. To be fully efficient, such target costs should encompass building and furniture so that cost interaction between these two elements can be really taken into account.
- e) Make an evaluation of the operation once the buildings are in use and register the financial results in a data bank with the purpose of improving the accuracy of the working cost norms.

Facilitating Inter-institutional Co-ordination and Networking

9.1 The need for inter-institutional networking

Schools and other educational institutions in the traditional pattern of educational administration are each treated as a unitary system, independently managed and related to the department of education. In such a system the smaller, more isolated, less developed institutions usually remain relatively underprivileged in terms of resources. In order to remedy the many afflictions of such educational institutions, some countries have initiated a variety of approaches to foster inter-institutional co-operation, affiliation and linkages. Some of these innovations are not exclusive to one country such as the cluster school system and school complexes. Nevertheless, each country is placing different emphasis on one or the other of the approaches.

The basic feature of all these approaches is to treat a conglomerate of institutions as a unitary system for selected services, rather than each institution by itself. In this way, a number of institutions can pool their resources together and benefit from each others' strength. Inter-institutional affiliations is emerging as an effective pattern for educational development and educational administration at the micro-level. Facilitating this co-ordination and networking thus becomes an important responsibility of the micro-level planner and manager.

9.2 Advantages of micro-level institutional linkages

Micro-level inter-institutional linkages are purposive and planned attempts for achieving specific objectives in educational development and management. The rationale underlying such arrangements is that the establishment of such linkages would:

- a) Cut the costs of education by making provisions, as occasion demands, for the sharing of scarce resources of teachers and equipment, and promote support for the efficient delivery of education especially in rural areas;
- b) Facilitate genuine decentralization by entrusting responsibility for the planning and management of education to the unit embodying the linkage (e.g. the school cluster or school complex). Real progress would be made in translating into action the principle of decentralization, thereby enlisting the active participation of the teachers and the community in the provision of education.

Some examples of these attempts in various countries are presented in this Chapter.

9.3 The cluster system of schools in Thailand

Efforts made in this regard in Thailand constitute the first systematic attempt to reap the above-mentioned benefits. The experience of Thailand goes back over a period of more than 20 years, and is well documented. Features that warrant special attention are that:

- a) The school cluster system was inaugurated on a nation-wide basis, which has been institutionalized by legislative measures;

- b) Concrete measures are envisaged to provide continuing professional support to be given to the cluster system to improve its functioning;
- c) The acceptance or perpetuation of parochial standards is guarded against, and quality control is ensured through the supportive supervision by higher level echelons such as the District Primary Education Office and the Provincial Primary Education Office;
- d) They are very suggestive in both theoretical and practical terms for any other country contemplating the introduction of a similar or comparable system.

In the beginning of the 1960s, the Department of General Education which was responsible for the management of primary schools in Thailand informally encouraged groups of 5 to 10 primary schools to constitute themselves into school clusters. Mutual assistance by sharing the resources of the schools was the objective of this undertaking. A committee consisting of the principals or directors of the schools in the cluster was set up in each cluster to oversee the activities by the member schools and also to encourage them to assist one another in improving the quality of education. Within a few years, all but a very small percentage of the primary schools in Thailand had constituted themselves into school clusters.

The introduction of the new primary curriculum in 1978 gave the movement an added impetus, as the Department of Curriculum and Instructional Development made informal use of the cluster system to facilitate the introduction of the new curriculum. Schools with qualified teachers and good facilities were selected as lead schools, and they were expected to provide academic and supervisory assistance to the other schools in their cluster.

A legal basis for school clusters was provided by the National Primary Education Commission in 1980 by means of legislating specific regulations. One article in the regulations states that co-operation and mutual support, both physical and intellectual, should be the guiding tenets for the operation of all work in the school cluster in order to bring about improvements on:

- a. academic affairs;
- b. school buildings;
- c. personnel;
- d. pupil activities;
- e. secretarial and financial matters; and
- f. the relationship between schools and the communities.

While principals and directors of all schools in the cluster are ex-officio members of the School Cluster Committee, the membership is made broad-based by providing that teachers, equal in number to half the ex-officio members, would be elected to the committee by the teachers in the cluster schools, subject to the condition that not more than a single teacher would be selected from any particular school. The Chairman of the School Cluster Committee would be elected by the teachers from among those holding the rank of principal or director. Thus, in addition to making the membership broad-based, the principle of election is also embodied as a step towards democratization.

A School Cluster Committee is entrusted with the following functions:

- a) To formulate school improvement plans within the scope of work of the school cluster and conduct school activities in line with educational management at the district and provincial levels as well as the policies of the National Primary Education Commission;

- b) To consider and approve plans or projects to improve every school in the school cluster;
- c) To consider and approve plans for staff development in the school cluster;
- d) To act as co-ordinating point for co-operation among schools in the cluster and between schools and communities for conducting various activities;
- e) To make recommendations concerning annual budget proposals of schools in the cluster;
- f) To follow-up on the performance and conduct of teachers in the cluster;
- g) To make recommendations on the annual promotion of teachers in the cluster;
- h) To set work plans, conduct surveys and carry out activities in accordance with the Primary Education Act to bring about universalization of primary education;
- i) To evaluate schools' performance in the cluster; and
- j) To carry out other activities as specified by the District and Provincial Primary Education Committee.

In the discharge of its responsibilities, the School Cluster Committee is to be assisted by professional support services. The Office of the National Primary Education Commission has evolved the following mechanism for professional support to school clusters:

- a) At the provincial level, a provincial primary education resource centre (PPERC) will be set up in each provincial primary office. Its functions would mainly involve the promotion and development of teaching-learning materials and equipment for use in school clusters, namely:
 - i. Production of teaching-learning materials and equipment for school clusters and co-ordination with the school cluster centres in producing the materials and equipment.
 - ii. Demonstrate and render advice to school cluster teachers on the use of teaching-learning materials and equipment as well as on related activities such as training dissemination and exhibition of teaching-learning materials and equipment.
 - iii. Prepare and keep inventory of teaching-learning materials and equipment as well as maintain in good condition the materials and equipment produced by the PPERC's, school clusters and those given by other institutions or purchased from the government budget.
 - iv. Provide services to school clusters regarding the supplies of teaching-learning materials and equipment.
 - v. Repair equipment and teaching aids.

In matters of quality control in education, the last word does not lie with the schools or the School Cluster Committees, inspite of the availability of professional support services mentioned above.

- b) At the district level, the District Primary Education Office assumes the responsibility for:
 - i. co-ordinating schools' activities within the district;
 - ii. monitoring schools' activities; and
 - iii. supervising schools in the district.

- c) At the provincial level, the Provincial Primary Education Office in each province assumes the responsibility for:
- i. school provision;
 - ii. in-service training for district supervisors, teachers and school cluster personnel mainly in areas which will help to promote the quality of teaching-learning in primary schools, e.g. in the production and use of simple teaching-learning materials and equipment in collaboration with the Central Supervisory and Teacher Training Colleges;
 - iii. research and experimentation relating to educational development in the province; and
 - iv. production of simple teaching-learning materials and equipment.

In some Provincial Primary Education Offices, technical centres equipped with appropriate audio-visual materials and equipment have already been established to strengthen the provision of professional support services to the school clusters.

9.4 The school clusters in Bangladesh

In Bangladesh, the school cluster has become a centre for the training of primary school teachers. About 10 to 12 schools form a cluster with one of them recognized as the resource school in the cluster and equipped with audio-visual equipment and other teaching aids. An officer with the title of Assistant Upazilla (Sub-district) Education Officer (AUEO) exercises supervision over two such cluster, and it is the responsibility of this officer to visit the schools in his cluster and organize small group teacher training. A handout entitled "Teachers' Leaflet" of a partly self-instructional nature is produced and distributed among the teachers as follow-up to the face-to-face training.

9.5 The school complexes in India¹

The preferred term in India is school complex rather than school cluster. A school complex will generally cover a geographical area of about 5 to 10 miles in radius, containing one secondary school, about 5 higher primary schools, and about 28 lower primary schools. Eight to ten lower primary schools will be integrally related to a higher primary school on the basis of geographical proximity. The headmaster of each higher primary school designated for this purpose will be responsible for seeing to that the lower primary schools come under its purview function effectively, but he will be assisted in this task by a committee of the lower primary schools concerned. The headmasters of all the primary schools and lower primary schools will constitute a committee under the chairmanship of the headmaster of the secondary school. While the headmaster of the secondary school will be in overall charge of the school complex, this committee will be responsible for the functioning and development of all the schools in the school complex.

9.6 The school zones in Sri Lanka

In Sri Lanka, a system of cluster schools is established on a pilot scale in 1983. A distinctive feature of the system is that in general a cluster consists of a small number of secondary schools and primary

1 Singhal, R.P. *Revitalizing School Complexes in India*. New Delhi, Concept 1983;
Also see *Micro-level Educational Planning and Management - Report*. UNESCO-ROEAP. Bangkok 1986. pp. 34-35.

schools near to them. One of the secondary schools, usually the best staffed and equipped among them is identified as the core school in the cluster, and the principal of the school is entrusted with certain responsibilities in regard to all the schools in the cluster. There has recently been some re-thinking as to the advisability of placing such a heavy load of responsibility on the Principal of the core school. The basic unit is a school zone, consisting of about 10 or fewer schools situated within reasonable distances of each other. There is no core school, unlike the cluster system. Decisions regarding planning and the sharing of human and material resources is made at zonal meetings in which the principals of all the schools in a zone will participate.

9.7 The Learning Action Cells in the Philippines

The Philippines provides a different kind of example of inter-institutional linkages from those considered in the preceding accounts. Learning Action Cells (LACs) operate at four levels, namely the regional, the divisional, the district, and the school levels. The District Learning Action Cell is composed of the principals and head-teachers of the schools in a given district with the district supervisor of schools as the leader of the team. The School Learning Action Cell (SLAC) is composed of the principal and selected teachers from the school, if the SLAC is for a single school. If the SLAC is for a group of schools, their principals and selected teachers will constitute the SLAC. Where the SLAC is for a single school, its principal will be the team leader, but where the SLAC is for a number of schools, the SLAC members will elect one of the principals as the team leader. One of the major responsibilities of the SLAC is to make arrangements for the continuing professional development of teachers, and to mobilize for this purpose human resources as well as material resources in the form of learning-teaching materials. While the SLAC serves a number of schools, the linkages are obvious, but where it serves a single school, linkages are established with other SLACs for the exchange of experiences and learning from one another.

9.8 The rationale for inter-institutional co-ordination and networks

The relating of schools has been variously called networking, associating, grouping and clustering, according to the time and place. Whatever name the concept is given, essentially what is referred to is a group of schools working together as a middle-level structure interposed between the individual school and the total regional/district/county group of schools, the objective being to better fulfil the needs of the schools involved.

The organization of schools on a cluster basis has two prime purposes:

- a) clustering provides an organizational means for schools to relate to other schools in the interest of greater effectiveness and efficiency;
- b) from a regional viewpoint, clustering provides a readily identifiable focus for regional administration, for better co-ordinated delivery of services to schools.

The axioms that "two heads are better than one" and that "a problem shared is a problem halved" succinctly summarize the basic rationale for clustering. It is obviously beneficial for schools to consult with each other about common problems and proposals. In so doing, schools in a cluster are able to pool their collective knowledge and experience to achieve jointly-defined common objectives and to devise strategies for best meeting childrens' needs. In short, clustering has the potential for assuring a more efficient use of resources, both physical and non-physical, in the interest of improving schools.

Schools will of course use their clusters in particular ways which they perceive as beneficial to them. However, some obvious general benefits to schools which flow from clustering include the following:

- a) the development of a closer relationship and improved co-operation between primary and post-primary schools, essential for an effective transition/orientation programme and the possibility of curriculum planning on a multi-level basis;
- b) sharing of specialized knowledge and information concerning buildings and ground maintenance, joint-funding and community use of facilities on the one hand, and of information concerning school policy and curriculum development on the other;
- c) sharing of physical resources e.g. expensive equipment and use of buildings and grounds;
- d) jointly-organized in-service training for personnel or professional development programmes to meet the needs of the clustered schools;
- e) the preparation of joint submissions for additional resources and specialized personnel; and
- f) the cluster can act as advocate on behalf of member schools.

9.9 How to establish a school cluster: the Thai experience

For a micro-level planner and manager made responsible for establishing and administering inter-institutional co-ordination and network the following ideas, based on the Thai experience are provided.

9.9.1 Organization of the school cluster

A school cluster should consist of about 7-10 schools within the same locality. The grouping of school clusters should be based either on geographical location or on conditions of transportation in the area. It might be convenient to name a school cluster after the locality or other given names as appropriate. A leader and secretariat school must be chosen from amongst the school members by the school cluster committee.

The main responsibilities of a school cluster will be to enhance: academic affairs (development of teaching materials and aids); school building and supply; personnel (sharing of specialized teachers); pupil's activities; secretarial and financial matters; and the relationship between schools and communities.

9.9.2 Administration of school clusters

It will probably be necessary to form a school cluster committee to include principals and directors of all the schools in the cluster as ex-officio members. A number of teachers should also be included, but in general the total number of representative of teachers should not exceed half of the ex-officio members. It is advised that the chairman of the school cluster committee should be elected from amongst those holding the rank of principal or director of a school. The term of a school cluster committee chairman and members who are representatives of teachers should be about two academic years. They may be re-elected for another term but they should not serve in the committee for more than two consecutive terms.

9.9.3 Operation of the school cluster

The school cluster committee should co-ordinate the work and projects of the school members through monthly meetings. The results of the meeting and the resolutions will be reported to the district and higher levels. Its work in co-ordination extends from within the cluster to between clusters and with other agencies. In addition, the school cluster committee is responsible for collecting and collating statistical information on the member schools, for planning purposes.

Funds for the administration of the school cluster are usually drawn from both the budget allocated by the government and other sources such as non-governmental organizations and agencies, the community, or private individuals. The budget has to be managed according to the objectives of the school cluster and of the government as well as donors, with the approval of the committee.

A common feature of the organizational structures of school clusters is the core school. This may also serve as the resource centre. The aim of a resource centre at the cluster level is to:

- i. collect instructional materials and aids;
- ii. adapt and reproduce these materials;
- iii. promote, distribute and advise on their use;
- iv. keep record of extent of use of different materials;
- v. provide technical support in their use;
- vi. repair and maintain the materials;
- vii. assist member schools and teachers in further development; and
- viii. act as the secretariat to the school cluster, in carrying out the six major tasks of a school cluster, namely: improvement of academic quality, better use of school facilities, sharing of personnel, co-ordinated pupil activities, relationship between school and community, and secretarial and financial management.

To achieve these objectives, each resource centre should place special emphasis on the in-service training of teachers and personnel from the member schools. This also means that teachers of member schools should participate regularly in workshops, seminars, briefing sessions and other training or exchange programmes organized by the resource centre.

A general function of the school cluster is to promote the teaching-learning process through adopting and generating innovations in curriculum and methods. Moreover, the school cluster together with the resource centre should become a source of innovation for the purpose of mobilizing existing human and physical resources. The system will build up its resources of skilled, competent and committed personnel who bears the promise of continuously improving the standards and quality of education, and in promoting the use of educational technology in upgrading the teaching-learning process and the in-service training programmes for teachers.

9.9.4 Motivation, incentives and cognition

The network of cluster systems will incorporate many built-in mechanisms for motivating teachers. For example, schools within each cluster could be ranked in the order of academic performance which may be judged from students' achievement determined through an examination held at the cluster level

at the end of the academic year. Similarly, teachers working within each school may also be ranked according to the performance of students they taught. Appreciations and recognition may be accorded to the outstanding teachers, and they may also be considered for accelerated promotion.

9.9.5 Monitoring, evaluation and feedback

This should be done in each cluster by the cluster management committee. Members of this committee should visit all the schools in the concerned cluster at least once in every school term to evaluate the functioning of the school. The committee should check the activities of the school against the original plan and calendar. It may also advise on problems and issues encountered by the school management and recommend remedial measures.

9.10 Some observations

It is important to note that networking is a major structural outgrowth of the traditional individual school system which is intended to change the isolated character of a school. Whereas school mapping seeks out to locate schools in the places where they are required, networking tries to enrich their facilities by establishing operative linkages across a certain number of institutions. In this sense both of these techniques try to tackle the spatial dimension of school location and their upgrading in terms of infrastructural facilities.

Whereas larger educational institutions keep on diversifying and are capable of negotiating on-coming changes on their own, the same can not be said of the smaller and single teacher schools. It is in this context that networking emerges as an important organizational aid. It lowers the threshold of viability and thus makes even smaller schools more viable. Keeping in view the fact that in most of the developing countries, it is the smaller habitats in the remote places that are still in need of school facilities, the technique of networking, by making smaller schools viable, is a major step in increasing the outreach of education. This is in addition to the fact that it improves the quality of services available and that even bigger schools are provided an opportunity to play a much different and diversified role.

Project Formulation and Management

10.1 Plan, programme and project

A *project* is a planned undertaking, a unit of management that clearly specifies what is to be accomplished, over what period of time, and at what cost. A cluster of projects with specific time phases for the accomplishment of intermediate objectives is contained in a programme. A *programme*, in turn, is an intermediate activity which breaks down the strategic decisions of a *plan* into different components, or projects, which are technical or short-term in nature. A programme is usually a part of a complex structure for plan implementation. In view of the interdependence of programmes, there is a need for integrated and co-ordinated planning.

Thus a plan encompasses both the programme and the project. The plan reflects organizational objectives while the programme is a part of the plan designed to accomplish intermediate objectives. The project, however, relates to the implementation or carrying out of specific components of the plan according to the programme. In certain sense, because a project is an output-oriented activity, its concept is an active concept whereas the plan and programme are passive in their nature of mainly providing goals, directions, strategies and the overall framework for implementation.

In the micro-level context, the stages of project design and implementation have special relevance in comparison to plans and programmes, many of which originate from macro and meso levels, as these are the stages when major orientations and programme areas are translated into organized actions.

Thus the formulation and management of a typical educational project may have the following aspects:

- a) A project is the process of creating a specific result.
- b) A project has a life cycle. It undergoes several distinct phases as it matures. The phases include from the point of identification to formulation to implementation to termination and evaluation.
- c) Projects need multi-disciplinary skills. A project is a complete operation where the project manager acts as general manager, pooling various skills to achieve specific objectives within the given budget and timetable. These skills will vary according to the nature of the project.

10.2 Project phases

There are many phases or action sequences in the life of a project. These are listed and discussed in detail below:

- a) project identification;
- b) project formulation;
- c) project appraisal;
- d) project authorization;

- e) project implementation;
- f) project monitoring;
- g) project evaluation;

10.2.1 Project identification

The first phase of a project starts with the study of the environment within which the project is to be implemented. It involves learning about the forces, conditions and institutions that are relevant to the project.

Based on the study of the environment, one may be able to develop an understanding about:

- i. the availability of resources;
- ii. the demand for output;
- iii. existing government priorities;
- iv. programme thrusts, and relationship with other projects;
- v. relevant social trends;
- vi. possible constraints and hazards; and
- vii. the nature of project appraisal.

Such an examination will be useful in assessing the potential ideas and innovations about the project. It would also lead to a better understanding about the parameters/constraints within which the project is likely to be implemented.

10.2.2 Project formulation

The detailed project formulation is the next step once the project identification exercise has been completed. At this stage a micro-planner should develop specific details and their mutual linkages. A series of related activities, or jobs, or items of work which would contribute to accomplish project objectives will have to be prepared.

Keeping in view the significance of the horizontal linkages, it is essential that while undertaking project formulation, coordination among different educational agencies within the same locality must be maintained. It would facilitate complementarity among different projects being undertaken in the same region. This exercise is crucial. In its absence many aspects of micro planning such as, mobilization of resources, sharing of teaching personnel, sharing of equipments, etc., would not be possible. Furthermore, duplication of efforts and wastage of resources among various educational institutions can occur.

It is necessary to develop and sustain a common understanding about the importance of mutual co-ordination among different educational institutions. From the very beginning of the planning process, educational administrators as well as technical personnel at the micro level must strive to have the involvement of representatives from different agencies in the locality to share their problems, concerns and plans with each other. Information reflecting educational needs and constraints should be exchanged. Deviations from the given educational policy should be registered. By so doing the educational thrust for each locality would be clearly defined and the project formulation would become more focussed. Each

planner could then proceed to formulate the project with a high level of confidence about its relevance in relation to the needs of locality as well as to the perception of such needs by other agencies.

10.2.3 Stages in project formulation

Before arriving at the strategy to be utilized in the project, a planner should:

- analyse basic requirements to conduct project through;
- estimate resources needed for meeting expenditure, engaging personnel, within the given time-frame;
- estimate economic yields and other social benefits;
- list possible obstacles and other problems; and
- examine options and available alternatives vis-a-vis each of the above

In addition, a micro-level educational planner should take into account the environmental variables that could affect the operation of a project. They are of two types:

- i. The exogenous variables are those which are outside the control of the project. They could be emanating from the socio-cultural and economic conditions of the clientele and could be acting as constraints on the design of the project. Even if a micro planner may not have much of control on these, understanding them is of crucial importance for effective formulation of the project. For example the planner may not be in a position to exercise any control on the demographic behaviour of the population per se, but he must understand it fully for being able to plan education for them.
- ii. The endogenous variables are those which are within the broad control of micro-planner and he can supposedly exercise some pressure on these for affecting their performance. For example the administrative structure of the local educational office, its regulation, and day to day management can directly respond to the directions of the planner.

While preparing the project document the following aspects need to be included and stated explicitly:

- i. *Title* - This should reflect the main ethos of the project in clear terms. It should be self-explanatory. If it is necessary a second sub-heading should be provided. The main activity to be undertaken, its possible methodology, the region it relates to and special target group it focusses upon, if any, may find place in the title itself. However, the simplicity and attractiveness of the title (preferably that of its acronym) must be given careful thought.
- ii. *Rationale* - This section should provide the rationale and the justification of the project. It could do so both in terms of the overall national/provincial policy and also in terms of the micro issues/reasons that justify the selection of that particular region for the implementation of the project. If possible, reference may be made to the earlier efforts made in this regard with the help of people's participation and community's involvement. If there are some examples of similar projects being launched elsewhere, these may also be referred to in the project document. More frequently the micro planner will be invited to prepare a project under an already given programme or scheme. In that case, reference to it must be made as it would help in the proposal being evaluated in its appropriate context.

- iii. *Objective* - These are the broad objectives of the project. For example it could cite achievement of universal literacy or achievement of literacy in the case of the female population of the project area as one of its objectives. Similarly it could cite increasing the employability or performance skills of the students as one of its objectives. Normally a project may have two to four, or even five objectives. However there is no hard and fast rule about this.
- iv. *Target* - The target is the expected outcomes expressed in quantitative and qualitative terms within a definite time frame. If it is possible, a target should be specified for each period during the operation, so that the progress could be monitored periodically.
- v. *Activities* - The targets fixed for the project have next to be broken down into specific activities which need to be undertaken. For example if the target was to improve enrolment in the local school then the activities may be to undertake household survey to identify the pupils not attending the school, or to launch a community drive, or to improve the quality of teaching and provision of better facilities in the school. Each activity must be defined according to:
 - function of activity in relation to the project
 - time to be conducted
 - area of coverage
- vi. *Project scheduling* - This should include:
 - duration of a project
 - activities at different periods of time
 - responsible organization and personnel

In the final presentation of a formulated project, graphic aids such as the following can be effectively utilized. These will be discussed in detail in the next Chapter but are being introduced here:

- a) *Gantt or bar charts* This simple device enables the commencement and the duration of each project activity to be represented as a bar on a calendar.
- b) *Flow charts* The flow of work in a project is charted from commencement to completion. This technique is useful for at least a moderate-sized project in which a number of activities are to take place. A flow chart would help to simplify the complexity of various stages to be undertaken. It should show the order in which various activities are going to take place and should also indicate the mode of operation.
- vii. *Resources* - In this section the resource requirement of the project is spelt out. It may include financial, material and manpower resources as well as the time frame in which these would be required. It is advisable to present resource requirements under specific budget heading. Consumable resources should be stated separately from the fixed assets, or infrastructural requirements. If it is so expected, a possible room for eventual internal reallocation should be kept while specifying the resource requirement.

10.2.4 Project appraisal

A project can be appraised along four levels. These levels are :

- i. *Preliminary Appraisal* - The project is assessed in general form. It is checked whether it has been submitted within the given time frame i.e. before the dead-line, and whether it has been

submitted to the right place. What has been the route of its submission? Is it in the proper format? Have all the enclosures and other related documents been submitted along with?

- ii. *Feasibility Study* - At this stage the project is examined technically and more comprehensively. Special attention is paid to the design of the project. The assumptions that are made in the project and the proposed generation/use of data is examined closely along with instruments of survey, if any. Even the resource requirements and the time frame are examined in the context of the total task being proposed. This examination being technical in nature is usually undertaken by experts/experienced personnel.
- iii. *Appraisal* - At this stage the project is evaluated in its total context. Special attention is given to the technical report on the project described under feasibility. But in addition to it, the agency undertaking the project and the main ethos of the work are also given due consideration. If it is felt that the technical aspects of the project should be suitably amended, redrawn or modified as per the expert advice, this decision is also undertaken at this stage. In other words, appraisal is done in a holistic manner to gather a total view about the proposed project.

10.2.5 Project authorization

The approval of a project follows its appraisal. As mentioned earlier a series of earlier "approvals" by technical, financial, political and administrative officials may take place before final authorization.

10.2.6 Project implementation

The project manager acts as the general manager, pooling together various resources and skills to achieve specific objectives within a budget and timetable. The skills required will vary according to the nature of the project. The organization for project implementation usually takes into consideration a number of factors : the form of organization arrangements to be adopted, the relationship of the implementing unit with the parent organization, the degree of independence from established administrative requirements, the safeguards to ensure accountability, winding up and evaluation of the project at its termination.

Project implementation crucially depends upon the availability of resource inputs in adequate quantity and acceptable quality. Effective planning would require that these resources be programmed so that they will be available when needed.

Action planning and control are two interrelated functions in the project implementation process. One is concerned with the setting of goals, the identification of activities, allocation of inputs and the setting up of schedules. The other is concerned with the assessment of the degree to which progress is made towards the objectives, the determination of the causes of deviations, and the adoption of corrective measures.

10.3 Problems in project implementation

Usually there are several minor and major problems that are confronted in the implementation of projects. Some of these have been identified and classified below;

- i. Financial problems
 - Withdrawal/deferment of financial support

- Inadequate support
- Delays in release of funds
- Slow and tedious accounting and auditing processes
- Project funds used for other purposes
- ii. Equipment problems
 - Lack of equipment or inappropriate equipment
 - Breakdown and accidents
 - Lack of transportation facilities
 - Non-availability of spares
- iii. Problems of educational materials
 - Shortages or non-availability of materials
 - Delayed acquisition
 - Transportation problems
 - Relevance and quality
- iv. Technical problems
 - Lack of feasibility study
 - Shortage of good design and engineering
 - Limited land and space
 - Revision of plans and programmes of work
 - Lack of proper supervision and technical expertise
- v. Natural problems like floods, droughts, or earthquakes etc.

10.4 Project monitoring

The principal objective of a project monitoring systems is to develop an effective means of assessing the progress. Its main objective is to oversee the decision-making in implementation process and to record the achievement of the project's objectives. Monitoring also serves as the link between project implementation and planning. It documents experiences in implementation stage which provide useful data for planning the next phase or a next project.

Project monitoring enables the manager to adjust to conditions obtained in the execution of the project so as to achieve the desired goals within the desired time frame. The project schedule may be revised by updating cost or time estimates. To accomplish these functions, the reporting and management information system should include physical measurements of accomplishments, status of resources especially funds, and problems encountered.

10.5 Project evaluation

Evaluation refers to the assessment of on-going and completed projects. Project evaluation may be conducted during a project or after its completion.

The evaluation of on-going projects will indicate the progress of implementation based upon the plan. It will also show if the input requirements are adequate and in time, and whether conditions for effective implementation are available in the organization.

Evaluation is also directed towards the assessment of the extent to which output objectives have been attained. It is also a useful method of reviewing the planning and implementing experiences as they relate to the supply of inputs, the role of environmental factors, and the accuracy of estimates.

Preparing Project Operational Plan

11.1 Common techniques

To ensure effective implementation of projects, it is important to define clearly the project operational plan. This will facilitate the continuous monitoring, evaluation and control of the project. A number of techniques are used for this purpose, for example, preparing plan of operations (DALNOPS), work schedules, Gannt chart (or bar chart), and PERT (Programme Evaluation and Review Technique). These techniques are particularly useful for reviewing the progress of a project as well as its outcomes.

When there are many activities under a project or scheme, simple sequencing of one activities after another in implementation may not suffice for monitoring purposes. Graphic flow charting is another method that is commonly used for representing the synchronized implementation of different activities and the mutual dovetailing amongst them. Graphical presentation of activities can help the micro-planner to understand:

- a) What activity precedes and follows which; and
- b) The commencement and duration of each activity.

In this Chapter, two techniques are described, namely, (a) Bar (or Gannt) chart; and (b) PERT.

11.2 The bar chart

One of the most commonly employed graphical aids for project planning and monitoring has been the Gannt chart (or bar chart). It is a simple diagrammatic representation of multiple activities in a project, giving:

- a) detailed list of activities constituting the project;
- b) the probable date of commencement of each activity; and
- c) the duration.

Gantt charts are very simple to prepare. An illustrative chart is shown below.

Activity	April	May	June	July	August
Activity A					
Activity B					
Activity C					
Activity D					
Activity E					

Whereas it is a simple device and helps one in having an overview of different activities to be performed over a period of time say, one year, the Gantt chart does not show many other important aspects of activities, such as:

- a) Interrelationship of one activity with another is *not* indicated.
- b) The critical activities (i.e. those which are so important that any delay in them would disrupt or delay the entire project) are *not* identifiable.
- c) Updating the information when changes take place in commencement and completion of activities requires a new chart and hence the effect of changes on the entire project cannot be assessed.

11.3 The PERT technique

PERT is an acronym for Programme Evaluation and Review Technique. It is based on the method of *network analysis* and is fundamentally a diagrammatic representation of activities in aid to management. It uses a few simple symbols to depict:

- a) the logical and sequential arrangement of activities constituting a project; and
- b) their inter-relationships e.g.

What follows what?

What has to be completed before the other can start?

What stands as a constraint to what?

Its usefulness lies in the amount of careful analysis of activities, their sequential and logical relationships, that can be undertaken by the micro-planner. In this respect, PERT becomes an essential aid during all stages of a project ranging from formulation to evaluation. Terms and symbols used in PERT network are as follows:



= *Event* (i.e. start or end of an activity - Only a step in progress of the project and consumes *no* time or resources).



Events are numbered in sequence for identification.

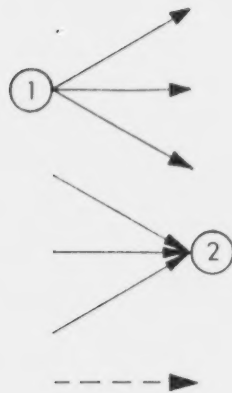


= *Activity* (a component of a project, which consumes time and/or resources).



= An *activity* connects *events*.

Preparing Project Operational Plan

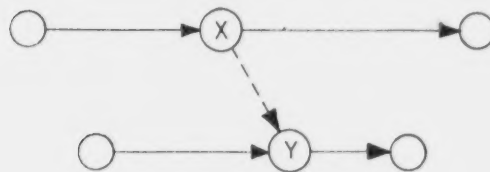


= Many activities can *start from* one event. Such activities may be taken up simultaneously.

= Many activities can *lead to* one event. They too may be simultaneously executed.

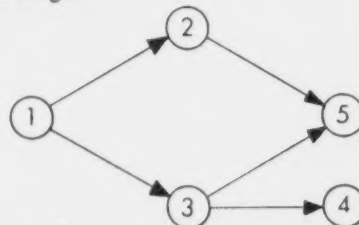
= *Dummy activity*. A dotted arrow joining two events indicates that the preceding event is a constraint on the succeeding event. For example, completing a building x is a constraint on starting to furnish it y

This will be shown as:



Two things to be *avoided* in a PERT network are:

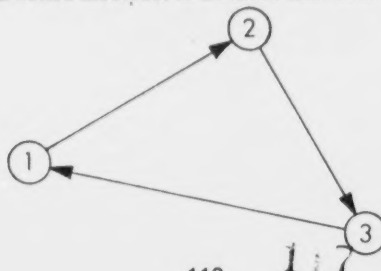
- i) *A Dangle*: Every event other than the *first* and the *last* must have a *preceding* and a *succeeding* activity or *dummy* activity leading to and starting from it. If an event hangs without such a connection it is called a dangle:



Event 4 is a dangle and has to be connected to Event 5 with an activity or dummy activity.

- ii) *A Loop*: When the logical sequence of activities is broken by showing that a succeeding event has in turn become the preceding event of a preceding activity, a loop is created:

This is illogical and hence incorrect in a PERT network.



11.4 Steps in designing a PERT network

One can begin to design a PERT network in several ways. The following is a simple method that can be learned easily and perfected with a little practice by a micro-planner without any pre-requisites.

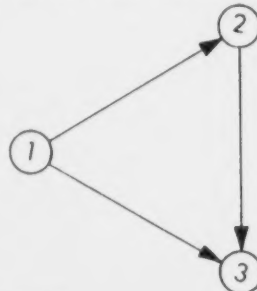
- Step I:* List all events¹ as they occur to you. After the first listing weed out the less important ones and amalgamate/separate events as convenient and logical.
- Step II:* Put events into sequence by serially numbering them in the first list.
- Step III:* List the events serially starting with the final event and ending with event 1 which is the *Start of the Project*.
- Step IV:* Indicate the immediately preceding event or events for each event. This will result in a form like the following:

Sequence No.	Event	Preceding Event (s)
5	Event	4
4	Event	3, 2
3	Event	2, 1
2	Event	1
1	Event	-

- Step V:* Draw the network starting with Event 1. According to above form, Event 2 is immediately preceded by Event 1. That means 2 follows 1. This in the network is shown as follows:



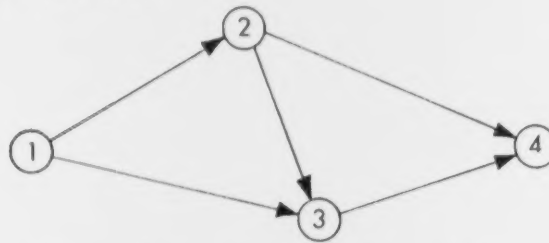
Event 3 is preceded by both Events 1 and 2. That is 3 follows both 1 and 2. So the network is extended as follows:



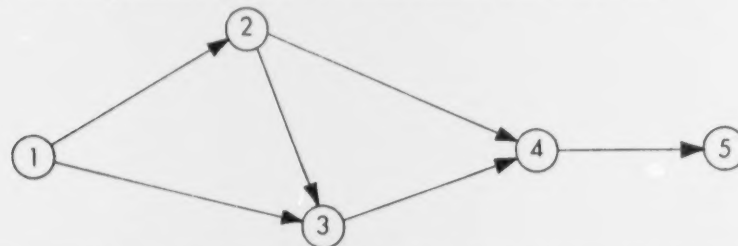
¹ For convenience, treat an event as the completion of an activity (e.g. activity: constructing buildings; event: the completion of building construction).

Preparing Project Operational Plan

Then, we find that event 4 is immediately preceded by events 3 and 2. That means 4 follows both 2 and 3. This is shown as follows:



Finally, event 5 is preceded by event 4. The full network will be as follows:



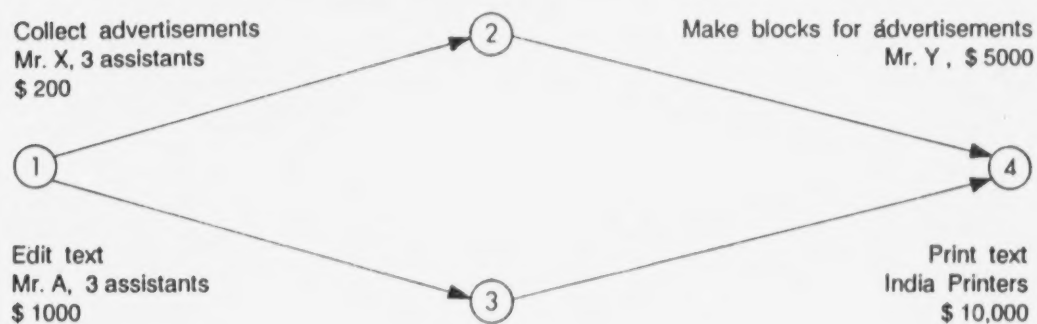
We can proceed thus from event to event until the full list of events we have developed for the project is completed. The technique can be practiced by plotting a network for the following events:

Sequence No.	Event	Preceding Event (s)
21	Event	20
20	Event	18, 19
19	Event	17
18	Event	17
17	Event	16
16	Event	11, 12, 13, 14, 15
15	Event	10
14	Event	10
13	Event	10
12	Event	10
11	Event	10
10	Event	9
9	Event	7, 8
8	Event	4, 7, 6
7	Event	2, 6

6	Event	4, 5
5	Event	2, 3
4	Event	1
3	Event	1
2	Event	1
1	Start	nil.

11.5 Data-loading the network

A PERT network's usefulness as a graphic aid to management can be substantially improved by writing along each arrow the activity that it represents. Further information as to the agency responsible for the activity can also be similarly written out. Where appropriate, resource allocation may also be noted. For example, all this information is given in the following network:



Where a network is to be data-loaded, care must be taken to avoid making it far too complex to be useful as a graphic aid. It should be remembered that it is a "must" for a graphic aid to be *clear* and *visually presentable*.

11.6 Time scheduling in PERT

The second main purpose of PERT (the first being the logical presentation of activities of a project and their inter-relationships) is to work out the *time schedule* for the project. PERT has evolved a methodology which enables the time scheduling to be done in such a manner as to provide a number of very useful and crucial data for management decisions. It consists of the four elements, namely:

- Time estimate
- Earliest time
- Latest time
- Slacks or Floats

Each of these is described in the following paragraphs.

11.6.1 Time estimate (t_e)

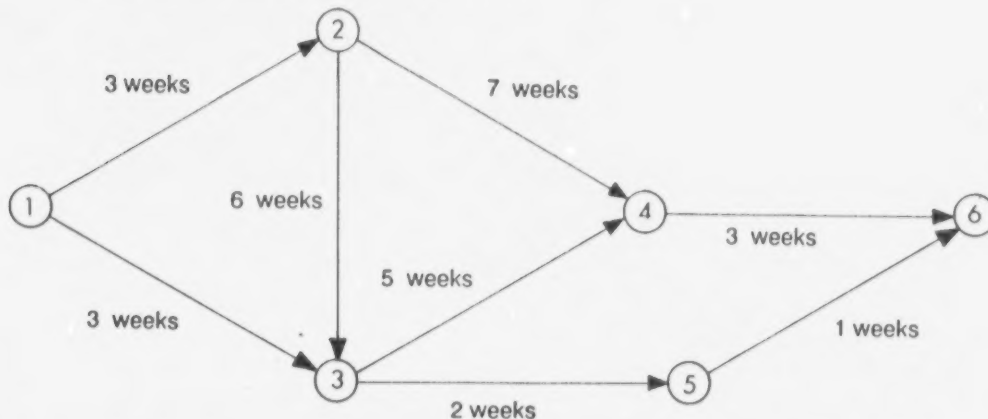
In PERT, time estimates are obtained from experts for each activity in three forms:

OE	=	Optimistic estimate	=	If everything goes well, how long will the activity take to be completed?
PE	=	Pessimistic estimate	=	If things go wrong, how long will it take?
ML	=	Most likely estimate	=	If things remain normal, how long will it take?

The three estimates are combined in the following formula to obtain the time estimate for each activity.² (The time estimate is represented in PERT as t_e (note that e is put slightly below t and is referred to as a sub-script).

$$t_e = \frac{OE + 4ML + PE}{6}$$

In a network, the t_e 's are shown as follows:



11.6.2 Earliest possible time for an event to occur (T_E)

Now we proceed on the basis of above time estimates, to find out the earliest possible time (symbol T_E - both capitals) when each activity of the network can occur. We will use the above network with its time estimates to work out the T_E . When you examine this network you see the following:

- Event 2 can occur only 2 weeks after the start, which is event 1 ; so the T_E for 2 is 2 weeks.
- Event 3 can occur only after both events 1 and 2 . As activities leading to events 2 and 3 consume 8 weeks, the T_E for Event 3 is 8 weeks. (Read the note below).
- Similarly, event 4 requires event 2 and 3 to have occurred. That makes T_E for event 4 to be 13 weeks.
- T_E for Event 5 is 10 weeks

² The rationale for this formula has been established through statistical analysis.

- T_E for Event 6, finally is 16 weeks.

It should be noted that when the T_E for a particular event can be calculated along several alternative paths, it is the highest figure that is valid, e.g. see the possible paths for Event 4 :

- via Events 1 and 2 - 9 weeks
- via Events 1 and 3 - 8 weeks
- via Events 1, 2 and 3 - 13 weeks

The correct T_E is 13 weeks, because Event 4 cannot occur until all preceding events had occurred.

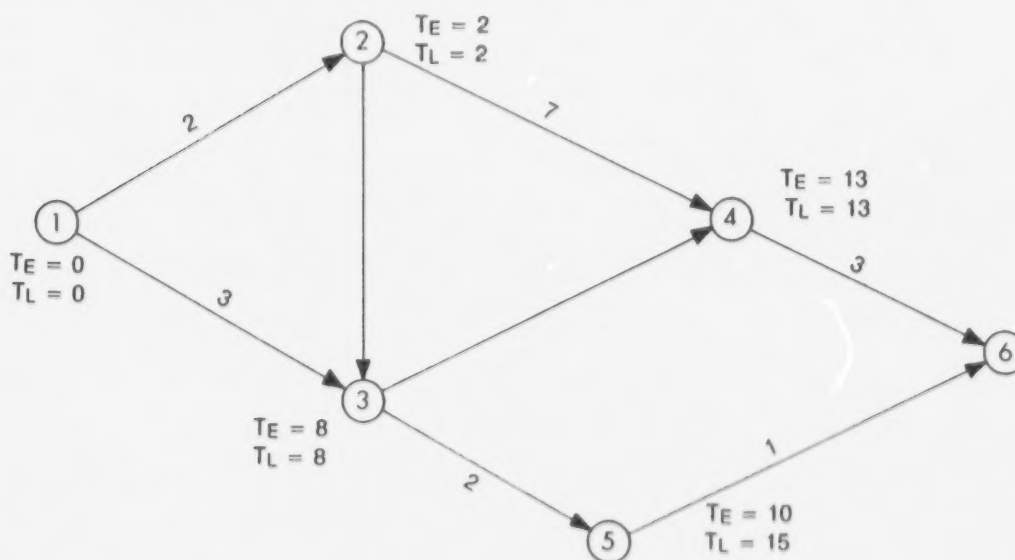
11.6.3 Latest possible time to which the occurrence of an event can be postponed (T_L)

Just as we have calculated above the earliest possible time for each event to occur, we also calculate the latest possible time to which the occurrence of each event can be postponed. This figure is represented by the symbol T_L (both capitals).

- On the calculation of T_E , we found that Event 6 would occur earliest in 16 weeks. So, if we have to finish the project in time, we cannot allow Event 6 to occur later than in 16 weeks. So for event 6 T_L is 16 weeks. Let us assume that this is also the T_S (the schedule time), i.e. the time allowed in the contract or plan.
- As 5 has to occur within 1 week of 6 T_L for 5 is 15 weeks. (i.e. $16 - 1$)
- T_L for 4 is 13 weeks. (i.e. $16 - 3$)
- T_L for 3 becomes 8 weeks. (Read the note below).
- T_L for 2 becomes 2 weeks. (Read the note below).
- T_L for 1 becomes 0 weeks. (Read the note below).

It may be noted that as in the case of T_E , the calculation of T_L is also possible along several paths. In this case it is the *lowest* figure that is valid.

The t_e , T_E and T_L will be shown in the network as follows:



11.6.4 Slacks or floats

In order to find out the *activities* which can or *cannot* be postponed or delayed, we calculated the T_L and T_E for each single activity. This is done by filling a form like the following on the basis of the above network: (Please note that we are now dealing with activities - not events)

Activity	T_L	T_E	Slack of Float
1 - 2	2	2	0
1 - 3	8	3	5
2 - 3	8	8	0
2 - 4	13	9	4
3 - 5	13	10	3
3 - 6	13	13	0
4 - 6	16	16	0
5 - 6	16	10	6

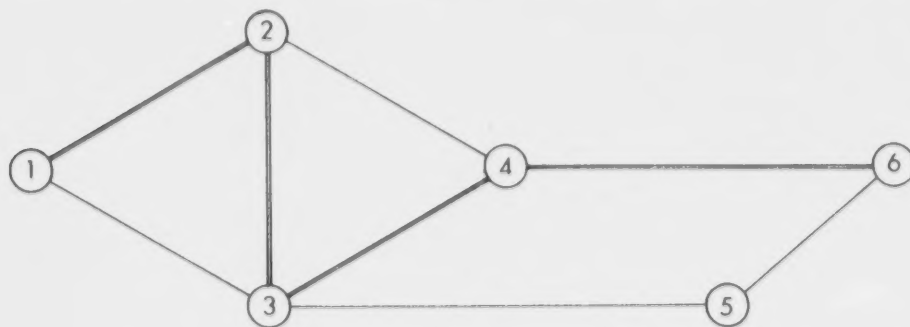
The above table shows that the difference between T_L and T_E in respect of certain activities enables a period of slack or float *that is, these activities can be postponed or delayed by that number of weeks, without affecting the time schedule of the project.*

The identification of the *slack* or *float* activities helps the manager in optimizing the use of his resources:

- postponing loan arrangements to save on interest;
- minimizing waiting time for men and machines; and
- diverting excess resources to where they are more urgently needed.

11.7 The critical path

Where the slack or float is zero, the manager can not afford to have delay or postpone the activity. Such activities are *critical*, because a delay in them will definitely disrupt the entire project. These activities form the *critical path*. Where a manager *manages by exception*, these are the activities he will carefully watch. In our network the following activities form the critical path:



We indicate it by short lines across the activity arrow. So the path connecting events 1, 2, 3, 4 and 6 is the *critical path*. When the critical path is identified, the manager will also know where his resources should be concentrated on. Thus the critical path becomes a management tool for both supervision and resource allocation.

11.7.1 Determination of probability

PERT also provides a method of determining the probability of keeping to the anticipated time limits. This can be done by the help of two simple formulae:

$$i) \quad x = \frac{PE - OE}{6}$$

$$\text{i.e. } \frac{\text{Pessimistic time estimate} - \text{Optimistic time estimate}}{6}$$

For this purpose, you add the pessimistic and optimistic time estimates for all *activities* of a project and find the difference. This difference divided by 6, is the denominator of the second formula.

$$ii) \quad z = \frac{SE - TE}{x}$$

$$\text{i.e. } \frac{\text{Scheduled time} - \text{Earliest time}}{x}$$

To each value of z corresponds a certain probability (see an extract in Annex I). The time schedule for an activity is acceptable if the probability is in the region of 65 per cent. *Below it* can create too tight a schedule and *above it* means that the resources are wasted through anxiety. Let us illustrate this point by comparing two sets of time schedules made for the same project:

$$TE = 16$$

$$TL = 15$$

Activity	PE	OE
1 - 2	9	8
1 - 3	3	2.5
2 - 4	6	5.5
3 - 4	3	2.5
4 - 5	5	4.5

$$i. \quad x = \frac{26 - 23}{6} = \frac{3}{6} = 0.5$$

$$ii. \quad z = \frac{16 - 15}{0.5} = \frac{1}{0.5} = 2$$

Probability (see Annex I) is 98%. Recheck the time schedule and resources allocation. There is no doubt that due to anxiety, resources are being

Activity	PE	OE
1 - 2	10	4
1 - 3	6	2
2 - 4	8	4
3 - 4	5	2
4 - 5	8	4

$$i. \quad x = \frac{37 - 16}{6} = \frac{21}{6} = 3.5$$

$$ii. \quad x = \frac{16 - 15}{3.5} = \frac{1}{3.5} = 2.9$$

Probability (see Annex I) is around 60%. Being below 65%, it shows that the time schedule is a little too tight. Some more resources can be diverted to the project.

11.8 Uses of PERT/CPM

PERT/CPM as a management tool has a number of significant uses:

- a) It is a graphic aid to logical organization of activities of a project, at the stage of project formulation.
- b) With time schedules and data on slacks or floats, it gives a reference point in time against which the progress of a project can be monitored. It is thus a *control device*.
- c) It identifies those activities which are critical and hence should be watched more closely by the manager.
- d) It serves as a simple device to inform work colleagues of the manner in which the project is being executed (i.e. a sort of illustrated work plan) and to obtain a feedback from them as regards both the organization and scheduling of activities and the progress. With data loading, it can be the instrument of delegation of authority and allocation of resources.

Above all these uses is its value as a *guide to thinking*. PERT way of logical thinking makes a person conscious of:

- a) sequence in activities;
- b) time as a resource;
- c) the feasibility of doing more parallel functions at the same time; and
- d) the need to identify and concentrate on critical activities.

In summary, it can be seen that one begins to organize one's activities - even day-to-day personal chores - with an imaginary PERT network as a guide.

Annex to Chapter 11

Probability Table

Z	Probability %	Z	Probability %
0.00	50	- 0.00	50
0.25	59	- 0.25	40
0.50	69	- 0.50	30
0.75	76	- 0.75	23
1.00	84	- 1.00	16
1.25	89	- 1.25	10
1.50	93	- 1.50	6
1.75	96	- 1.75	4
2.00	98	- 2.00	2
2.25	99	- 2.25	1
2.50	99.4	- 2.50	0.6
3.00	99.9	- 3.00	0.1

Part III

Micro-level Management Process

The preceding chapters have dealt with diagnostic analysis, project and spatial planning of education at the micro level. Here, the focus is on the management aspects within the micro-level context. Management is a very broad area and once the plan, programmes, and projects have been approved and given a go-ahead, every function thereafter falls in the ambit of management.

However, the area is subdivided broadly into fields viz. organization, regulation, control, personnel, finance, communication, monitoring and evaluation. These will be dealt with in separate chapters here and in subsequent parts.

This part has five chapters. Chapter 12 deals with the introduction and setting up of educational administration in the context of MLPM. The major import of the chapter is to impress upon micro-planners the benefits of participatory management at the micro level.

Chapter 13 is focussed on personnel management. It presents the general issues and then draws implications for micro-planning. Staff development and professionalization takes off from there as Chapter 14. The main emphasis is to apprise a micro-planner about the learning behaviour of adults and what are the considerations that should be kept in view while organizing staff development programmes.

The next chapter: Chapter 15, deals with an activity of particular significance in MLPM, i.e. committee management. It is felt that the micro-planner ought to have a basic understanding about how to manage local education committees and other parity local decision-making bodies. This is particularly so in view of the general emphasis on participatory management. This is followed by Chapter 16 related to the important aspect of communication which lies at the heart of any management system. It describes the general considerations which should be kept in view while developing communications at the micro level.

Management of Implementation

12.1 New perspectives on micro-level educational management

Management of implementation is at the heart of MLPM. Over the past decades, most countries in the world have built up their capacities for centralized educational policy and planning. Real educational development, however, continued to be plagued by deficiencies in implementation, particularly at decentralized levels. Strengthening management capabilities at the micro-level to take firm control of implementation is therefore a major growth area for the future. This is the more necessary as the whole world is currently according a high priority to education and human resources development.

With increased decentralization of the educational administration and accent on implementation, micro-level educational management has emerged to be one of the important areas of research and intervention. The education system being one of the largest sectors with institutions and personnel dispersed across the country and even into the remote areas, is constantly in need of new management concepts and approaches so as to build up the competencies of thousands of its management staff for better efficiency and effectiveness in the management of educational personnel, facilities, material, skills and technology.

The scope of educational management has considerably broadened in recent years. It stretches from overall strategic management to looking after the day-to-day nitty-gritty operations in the local areas. The further expansion and diversification of education have also brought with them new management concerns. Depending on the nature of local educational activities, patterns of organization, and multiplicity of decision makers, it is believed that by appropriately strengthening MLPM, education is likely to undergo substantial improvement in the years to come.

12.2 Organization of administration

Organization of administration is one of the most important aspects of management. Because administration entails administering the provision of a service or information or product, the form it takes and the manner in which it discharges its obligation is necessarily defined by this context i.e., the product defines the details of the administration. Education being a complex activity which inter-relates schools, teachers, students, their families, local socio-economic considerations, preferences of the government and the popular will, requires a meticulously worked-out educational administration. Although in many instances the obtained profile of educational administration does not seem to correspond to this requirement.

In general terms, administration is defined as a "*set of techniques, rules and procedures*" which are geared towards the achievement of the goals of educational policy.¹ In similar vein, organizing is defined as "*establishing logical connections amongst all the components*" of a service delivery system. Micro-level educational administration entails set up of a management team to implement educational programmes and projects for the local level.

1 Unesco: *Educational management at the local level*, Module III: Managing Education at the Local Level and in Individual Schools, Section 1, p. 3.

12.3 Complexity of a micro level administration

Educational administration at the micro-level has its own organizational peculiarities. Some of these are described below:

- a) Depending upon the level, the local educational administration can be of somewhat smaller size in terms of personnel and other resources. Yet it has to have all sorts of inputs, expertise for implementing the micro-level plan. For this purpose it may have to draw upon resource persons for short durations, and on ad hoc basis according to the requirement.
- b) Being closer to the field situation, it has more ongoing interaction with the local people. Needless to say that the style, contents and techniques required to handle such situations will be different from administrations at higher levels. Flexibility and readiness to interact with the various concerned parties from different sectors of the local community will be essential.
- c) At the micro level, the formal structure of the organization will carry less weight. Most of the social institutions it has to deal with will be open-ended and informal.
- d) The micro-level management team is called upon to take into account a variety of detailed information, data, attributes and variables, than are usually taken into account at the macro level. This is because the micro-planner has to delve into much greater and wide-ranging details than a macro level administrator has to do.
- e) The methodology of analysis at the micro level is far less structured and amenable to standard techniques than may be the case with macro-level information. There is much greater qualitative and intuitive component built into micro-level analysis.

On the other hand, being a part of the multi-level framework, a micro planner also has to deal with standard bureaucratic structures at the higher level as well as laterally. In other words, the administration at the micro level has to have the capability to handle both the formal administrative system, as well as open informal field relations which are predominant at the micro level. All these considerations lead one to conclude that the nature of administration, and its organizational design at the micro level is far more intricate, complex and open-ended than is the case at the macro level.

12.4 Establishing local administrative structure

A first step in the organization for micro-level management is to first study the general administrative structure in the region. There may be some new areas where nothing exists yet, otherwise usually there would be some kind of administrative set up already available in the region. The micro-planner has to examine and, finding it suitable, then identify the aspects in which administrative organization and functions need to be augmented. He can undertake this exercise keeping in view the educational requirements of the region, objectives of the overall national policy and the aspirations of the local people. Establishment of structure involves the following:

- Logistic support for administration e.g., buildings, transport, information and communication facilities.
- Staff support for administrators such as clerks, secretaries and others.
- Linkages with the higher and lower administrative layers in terms of channel of communication, reporting, transfer of funds and materials.
- Lateral linkages with other local government and supportive structures.

- Acquisition of legal status under local laws, if required.

12.5 The management team

The next step in organizing the administration involves identification of a team which is to assist in carrying out micro-level educational planning and management. This team will be composed of local officers directly responsible for education and training, those who are involved in financing local education, outstanding headmasters and teachers, and local community leaders. Eminent local educationists and instructional specialists may also be involved in developing curriculum, selecting textbooks and supervising examinations, etc. There may be others like eminent citizens, representatives of local community, parents, etc. who are aware of the local conditions and needs. All of these taken together will constitute the team for implementing educational programmes at the micro level.

To make this team serve the goals of education with available resources is one of the major responsibilities of a micro-level educational administration. It may not be always easy to do so. Their aims, approaches to solution and the choice of process may differ from one team member to another. Micro planner in his capacity as the educational administrator of the region has to negotiate these variations and has to galvanize them into a cohesive team. To a large extent the success of micro-planning and management would depend upon how well he can achieve this objective.

Usually the composition of team would entail of the following inputs:

- administrative fiat from higher and/or legal sources
- technical know-how and expertise, whether from local professionals or from outside
- goodwill of the community at large.

It is the amalgam of all these and several other inputs that determines the mutual compatibility of a micro-level educational management team.

12.6 Administrative process

Traditionally, according to the way educational development has taken place among most of the countries of the region, the education administration has been top heavy. The impetus for educational development usually comes from above. It has been relying heavily on the fiat of the government and has drawn little on the professional competence and even less on the goodwill of the local community. Consequently, with the expansion of the education system, the central administration has tended to swell. In many countries of the world, the ministries of education are easily the largest organization.

In addition to their size, educational administration in some countries has become passive, non-responsive to changes and indifferent to educational development. It has found it safer to replicate schemes and programmes year after year without attempting to come to terms with the variations involved at the micro level. As a result, investment in education has not been yielding as high returns as it should have. And demands for further increments in investment of education have been rendered dubious.

MLPM has emerged as an alternative to the traditional centralized educational administration. A number of countries are now committed to this approach in strengthening the overall administration of education. In essence, it ushers in a new wave of *"democratic integrated planning as much as sharing of management responsibilities"* at the local level. The characteristics of the two approaches, categorized as either the authoritarian or co-operative, are further elaborated below.

Authoritarian (Hierarchical or Bureaucratic)	Co-operative (Team or Participative)
1. Decision-making and control is at the top.	1. Decision-making and control is at all levels.
2. Management is unilateral and based on conformity and dependence.	2. There is interdependence and co-operation among all members.
3. Tasks are specialized.	3. Tasks are constantly enlarged and efforts are made to increase people's understanding of the whole endeavour.
4. There is centralization of power, information, rewards and punishment.	4. There is decentralization of power, information and rewards.
5. Morale and commitment is the responsibility of management.	5. Everyone is responsible for morale and commitment.
6. The system is competitive and based on individual status.	6. Co-operative system with status based on contribution to group objectives.
7. It is believed that the important human relationship are those which are related to achieving the organization's objectives.	7. There is an atmosphere that permits and encourages emotional expression as well as task-oriented acts.

Since the 1960s, the trend towards co-operative management has become widespread in response to:

1. A movement away from the use of status for organizationally-relevant purposes toward the use of co-operation and participation.
2. A movement away from resisting individual differences toward accepting and creatively using them.
3. A movement away from primary emphasis on competition toward a much greater emphasis on co-operation.
4. A movement away from the distrust of people toward trust of people.
5. A movement away from the avoidance of risk-taking toward the willingness to risk.
6. A movement away from the use of evaluation primarily as a basis for punishment, retention or dismissal toward an application of formative appraisal as a means for personal growth and development.

The management theorist, Rensis Likert, in his book: *"New Patterns of Management"*, has given a detailed description of the characteristics of a healthy organization, based on the co-operative or team approach. These characteristics include :

Management of Implementation

1. The members of the group or the organization are attracted to it and are loyal to its members, including the administrator/manager.
2. All members of the organization have a high degree of confidence and trust in each other.
3. The values and goals of the organization reflect the related values and needs of its members.
4. Insofar as members of the organization are performing co-ordinating functions, they endeavour to have the values and goals of the groups with which they work in harmony with each other.
5. The members of the organization are highly motivated to abide by the major values and to achieve the important goals.
6. All interaction, problem-solving and decision-making activities occur in a supportive atmosphere.
7. The administrator/manager exerts a major influence in establishing the tone and atmosphere of the organization by his leadership beliefs and practices.
8. The organization is eager to help each member develop to his full potential.
9. Each member of the organization accepts willingly and without resentment the goals and expectations that he and his group establish for themselves.
10. When necessary or advisable, other members of the group will give a member the help he needs to accomplish successfully the goals set.
11. The supportive atmosphere of the highly effective group stimulates creativity.
12. There is strong motivation on the part of each member to communicate fully and frankly all the information which is of value to the organization's activity.
13. There is high motivation to use the communication process so that it best serves the interests and goals of the organization.
14. Just as there is high motivation to communicate, there is a correspondingly strong motivation to receive communications.
15. The ability of the members of a organization to influence each other contributes to the flexibility and adaptability of the organization.
16. Individual members feel secure in making decisions which seem appropriate to them because the goals and philosophy of operation are clearly understood by each member and provide a solid base for decisions.

An important aspect of the highly effective organization that adopts a co-operative approach is its extensive use of the principle of supportive relationships. An examination of the above reveals that virtually every statement involves an application of this principle.

In contrast, when these characteristics and principles are not in existence, the organization begins to falter. The symptoms of an unhealthy organization are :

1. Goal ambiguity - Members do not understand or use goals in their activities.
2. There is little individual commitment to objectives except at top levels - People see things going wrong, but do nothing about it. Nobody volunteers. Mistakes and problems are shelved

rather than openly discussed. People "gripe" about problems with everyone except those involved. People stifle their frustrations instead of communicating them. "I can't do anything about it" is the dominant attitude.

3. Status and boxes on the organization chart are more important than solving the problems. People treat each other, especially the superior, in an artificial, formal manner which masks the real issues.
4. Decisions are made at the top based often upon inadequate information and advice. People often complain about irrational decisions. Judgements of lower echelon people are not respected outside the narrow limits of their jobs. Individual feelings and needs are side issues.
5. People compete rather than co-operate. People are jealous of their empires. Members distrust others' motives and speak poorly of one another. In times of crisis, they withdraw or blame one another.
6. Conflict is managed by politics and deceptive "games". There are frequent arguments, delaying decision-making. People take refuge in policies and procedures and play games with the organizational structure.
7. Members get little feedback on performance, and it is usually negative feedback. They reject the experience of others, learning by their own mistakes. Poor performance is ignored or handled arbitrarily without concern for the people involved.
8. Members feel alone and lack concern for one another. Relationships are contaminated by image building. People often feel locked into their jobs, yet they need the job security. Behaviour at meetings is often listless and docile.
9. The top manager is a solution-giver. These solutions are made in the form of directives. The manager has all the answers but he may not know what the right questions are.
10. The top manager allows little or no freedom for making mistakes. Minimum risk is a high value. He tightly controls expenditures and demands excessive justification.

In the chapters which follow, the various management responsibilities of the micro-level educational planner and manager are described in detail. Underlying the discussion is the assumption that in fulfilling each of these responsibilities, the micro-level planner and manager could well consider adopting a co-operative, participative approach.

Personnel Management

13.1 Dimensions of Personnel Management

Personnel management is a crucial aspect of managing an organization in view of the fact that people constitute the most important component of any organization. People continue to work in an organization as long as there is a balance between their individual needs and the needs of the organization. If such balance breaks down and the people feel that their individual needs are not taken care of, either they leave the organization or their morale deteriorates. Personnel management assumes responsibility for maintaining this balance.

Personnel management in education, particularly at the micro level, involves the effective handling, co-ordination and control of a large number of heterogeneous personnel directly or indirectly involved with the educational process. These persons comprise :

- Teachers - who form the bulk of human resources engaged in the teaching/learning process.
- Educational administrators - who plan, organize, manage and co-ordinate actions and resources in the running of an education system.
- Technical personnel - qualified staff who provide technical support to teaching and educational administration.
- Auxiliary personnel - employees without special qualification who render indirect support to education, such as secretaries, janitors, cleaners, cooks, carpenters, drivers, etc.

At the same time, a variety of individuals and agents are involved in education and training at the local level. They may include administrators from other sectors and agencies, local community leaders, non-governmental organizations, voluntary workers, and interested community members. It also falls under the responsibility of the micro-level educational administrator to co-ordinate and manage the involvement of these persons to the extent possible.

13.2 Functions and process

Personnel management in education embraces five related processes: *recruitment, training, placement, evaluation* and *career development*. Increasingly, responsibility for these processes is being delegated to the micro-level educational administrator.

13.2.1 Recruitment

The main purpose of recruitment is to engage persons in order to ensure that the objectives of the education system or sub-system can be achieved in a satisfactory manner.

Recruitment begins with the assessment of needs in terms of the number and qualification of personnel required to achieve the objectives. This assessment is accompanied by the determination of financial and other resources required to support the required personnel. Once the resources are allocated

or made available, it is the responsibility of the micro-level educational administrator to define the job requirements, establish the post, and to call for applications.

A main concern in the recruitment process is to identify with the least efforts the right person for the job. Clear and complete information on the vacant post must therefore be provided, particularly to groups of persons who are most likely to fulfill the requirements. That is why post vacancy announcements in education are often addressed to persons on staff or to the teacher training institutes.

In the ensuing selection process, a variety of methods can be used such as review of prior records and experiences, competitive examinations, aptitude tests, psychological tests, interviews, etc. The outcome is the identification of a list consisting of a reduced number of candidates, with objective evaluation of their profile and appropriateness for the job. The persons on this list will be subject to priority consideration and final selection for appointment. As required, the school headmaster, the school management committee or local education council, and the micro-level educational administrator will be involved in the selection process.

In most countries until these days, primary education has not been able to attract high calibre personnel because of such reasons as low educational and professional standard, poor salary structure, poor working conditions, lack of job satisfaction, and low social status. To cope with this, emergency measures have been taken to draft in poorly-educated and untrained personnel.

In recent years, systematic measures to raise the recruitment standards of teachers have been adopted. These have however been slow in raising the status of teachers and attracting better calibre candidates. Moreover, corresponding improvement of the calibre of supervisory and administrative staff is also necessary.

13.2.2 Training

Personnel management does not begin after the personnel is recruited but at the point of selection for initial pre-service training. Recruitment of suitable candidates for teachers training precedes recruitment of qualified teachers.

Once the educational personnel is in the job, training and retraining is extremely important to enable them to competently discharge of their duties and move from echelon to echelon. Besides, rapid advances in learning needs and educational concepts, methods and techniques call for continuous upgrading through in-service training. Teacher training content should therefore provide a minimum package of knowledge, attitude and skills to enable the teacher not only to manage the classroom environment, curriculum and children, but also to interact with the local community members.

As education develops with demographic, social, economic and cultural changes, there is a corresponding increase in children's abilities. Teachers who have been used to teaching selected pupils will need to acquire a wider range of skills in order to handle a more demanding mix of abilities, capacities and interests. In the training, a positive attitude towards fostering continuing self-development among the learners should be inculcated.

Personnel management must therefore work in collaboration with the training institutions and teachers associations to continuously raise the standards of educational personnel. One way to do so is through the organization of training networks linking together training facilities at the municipal, county, township and school levels to offer all kinds of training opportunities.

The table on the next page summarizes the main characteristics of different kinds of training, according to different criteria.

As for educational administrative personnel, identifying problems, formulating objectives, assessing resources, decision-making, organizing, co-ordinating, evaluating performance and effective communication, each of these processes requires specific skills and knowledge which can best be acquired by systematic training reinforced with guided practice. At the micro-level, emphasis must therefore be placed not only on the training of teachers, but also on the training of people to assume management responsibilities in the local education system. The micro-level educational administrator is directly responsible for assessing the needs for training of educational personnel, organizing training opportunities, and ensuring satisfactory participation and impact on the quality of personnel.

13.2.3 Placement

Placement of educational personnel is perhaps the most delicate aspect of personnel management in education. Usually, a large variety of factors such as personal circumstances and desires on posting, personality and character profile, family-community support and facilities, professional strengths and weaknesses as identified in training and interview, as well as the local needs will have to be taken account while deciding the placement of a new teacher.

For example, it is commonly believed nowadays that to place teachers in rural areas, it is more effective to recruit someone who originated from the same area. Having a better understanding of the local environment, needs and mentality, this person is likely to achieve better results vis-a-vis both the pupils and the local community. In regard to the problem of high attrition of teachers in rural areas, such a person may also be more inclined to stay in the same rural areas.

Currently, it appears that it is the personal and community factors which have the greatest weight in the practice of placing new teachers. This is important for the physical and psychological welfare of the teachers. But personnel managers should also pay attention to professional factors. It is during the first three or four years that a teachers can be made or wasted. The presence of supportive professional colleagues, headteachers, advisers, and school supervisor is a critical factor in building up confidence and competencies during the induction period. Unless a teacher is completely unsuited to a particular post, it is desirable that a teacher should remain in one post for a minimum of two to three years in order to maximize on the opportunities of learning on-the-job.

As mentioned above, posting of teachers like the issue of transfer is a potential problem area in personnel management. Transfer to hardship posts should not be used as a means of punishment as this is unjust to the school in those areas for they will be manned by disgruntled and demotivated personnel. Moreover, poor quality personnel need above-ordinary support and supervision if they were to improve. This is rarely possible in disadvantaged areas. If there is a way to convince better-than-average personnel to volunteer to go to hardship posts, this will close the gap in disparities in education amongst school, districts, divisions, or regions.

Criterion	Type of Training	Characteristics
Professional situation	Pre-service	- Designed to prepare people to enter the teaching profession
		- Training given in special schools
		- Comprehensive subject content
	In-service	- Designed to improve performance
		- Training generally given at the place of work
		- Contents defined by the skills required
Method of training	Face-to-face	- Direct relationship between teacher and student
		- Stimulating reciprocity
		- Target group necessarily limited in size
	At a distance	- Fewer contacts and impersonal relations
		- Self-paced learning
		- Larger target groups
Concept of the programme	Controlled	- Imposed educational process
		- Courses reflect the needs of schools or the system
		- Rigid process
	Participative	- Learning process determined by the participants
		- Learning reflects the needs of those involved
		- Flexible process

Transfers will inevitably cause some disruption and hardship. The adoption of appropriate incentive measures for education personnel promotes higher morale and a corresponding degree of efficiency at work. Incentives can be in the form of merit increase in salary for exemplary job performance, for introducing cost-saving/efficiency, for enhancing innovations, or for enabling scholastic or educational accomplishment. Aside from monetary considerations, incentives may also be given in the following forms:

- a) free furnished accommodation;
- b) hardship/isolation allowance;
- c) leave with full pay with travelling allowance to visit home;
- d) concessional fares on public transport;

- e) children's education allowance;
- f) accelerated promotion for good performance in hardship posts;
- g) enhanced opportunities for in-service professional development.

It is found that whichever the form and value of incentives, it is the sense of open recognition of merit that really matters. Therefore, the micro-level educational administrators should not hesitate to acknowledge staff contributions and achievements in all possible ways.

13.2.4 Supervision

Supervision promotes professionalism and performance by means of keeping the personnel up to the mark through external interventions. To serve this end, supervision should not be based only on rules and regulations, but should be geared to offer assistance and guidance to teachers in educational matters.

In reality, however, education officers responsible for supervisory function at the local level are usually preoccupied with administrative matters like the appointments/transfer of teachers, or disbursement of salaries. They have hardly the time to carry out professional supervisory visits to the schools as an important part of their responsibilities. Lax supervision encourages personnel problems such as teacher absenteeism, and aggravates the complex problem of drop-out and wastage. Poor supervision, moreover, results in poor quality of instruction and poor learning achievement.

A possible approach to cope with the deficiency in supervision would be to mobilize the community by forming District/Village or School Education Committees with the supervisor as one of its members. The committee could meet regularly, or periodically to consider the problems facing the schools as well as the community. In this way, the supervisor would remain fully informed of the functioning of the school and to advise on measures to be taken to solve the problems. Through participation in the committees, he could also forge closer link with the community. Directly or indirectly, the teacher would be able to gain access to expert advice from the supervisor on educational matters.

The school complex/clusters discussed in Chapter 9 constitutes yet another approach to supervision.

13.2.5 Performance appraisal/evaluation¹

Personnel performance evaluation is an important process of quality control. It can take the form of either internal evaluation within the school by the staff concerned, or external evaluation by inspectors of schools, office-based supervisors, or member of the local education committee. No staff development programmes can be meaningfully mounted without careful evaluation.

A good performance appraisal system is a powerful tool for personnel management, in reinforcing professional standards and improving management control and accountability.

The purpose of evaluation is threefold:

- (i) to appraise the performance of an individual;

1 For a detailed discussion of evaluation please see Chapter 24.

- (ii) to assess the performance of a group of individuals involved collectively in carrying out a task; and
- (iii) to identify needs and problems.

The micro-level educational administrator may approach evaluation in two ways, namely:

- (i) process evaluation; or
- (ii) product evaluation.

For example, appraising a teacher's effectiveness is seen as process evaluation and some criteria which can be used are: setting of appropriate teaching/learning objectives, preparation, presentation, degree of pupil's participation, teacher's communication skills, use of teaching aids, and rapport with pupils.

Product evaluation, on the other hand, takes the form of tests and examinations aimed at measuring the scholastic attainment of the pupils. Their performance as against that of the teacher is appraised. Product evaluation is not necessarily restricted to cognitive areas. Affective and psychomotor areas can also be appraised to ensure the all-round development of individual pupils.

The concept of evaluation has changed tremendously during recent years. Evaluation of teacher's performance, at a certain point in time, was carried out for the main purpose of confirming the services of a teacher on probation or to determine suitability of a teacher to merit a salary increment or promotion. Evaluation was exclusively done by inspectors of schools.

Today, teachers are encouraged to perform self-evaluation. When the performance of a school is to be appraised, very often the appraisal is carried out jointly by office-based supervisors and staff of the school. This new approach to evaluation helps to foster better understanding between office-based supervisors and teachers and to promote closer co-operation among all persons involved in educating children. Self-evaluation may be used advantageously in human resource management to enable educational personnel to understand and improve upon their performance.

Education officials should realize that human resource management and development is an applied art. Staff development and professional upgrading programmes are to be systematized. These should be made to form an integral part of the education service to ensure that knowledge and skills of teachers, school principals, supervisors, administrative and all other education personnel area are constantly updated to cope with changing conditions and requirements.

13.3 Problems and issues in personnel management

There are a number of problems and issue facing the micro-level educational management systems. These are summarized as follows:

- a) Inadequate attention is being paid to personnel management. Often, personnel management is not regarded as a special function. Every administrator is expected to be a good personnel manager. Without necessarily possessing the qualities and skills for negotiation, tact and sympathetic involvement, most administrators may find personnel management difficult.
- b) The human relations approach is not used effectively. Personnel management is the real testing ground for the principles of human relations. Most grievances have a highly personal,

hence emotional bias. In handling them much can be gained by sympathetic listening, friendly persuasions, and a flexible attitude towards rules and regulations.

- c) Personnel policies are sometimes absent. Overall personnel policies are necessary for personnel managers at different levels to fall back upon and to make consistent decisions. In its absence, contradictory decisions which, when applied to individuals, give the impression of unfairness and discrimination. Apart from the adverse effect they may have on the morale of an organization, remedial actions in the form of grievance handling and redressal tend to consume much time and energy.
- d) Certain personnel management functions are emphasized while others are neglected. Personnel management is often confined to recruitment, transfer, promotion, discharge and disciplinary action. The other important functions such as training and professional growth and welfare do not figure at all. In the absence of a comprehensive coverage of all functions, the more constructive aspects of personnel management tend to be neglected.
- e) Personnel records are often inadequate, inaccurate and unreliable. As in the case of personnel policies, records play a major role in ensuring fairness of personnel decisions. When records are faulty, such decisions as transfer, promotion and disciplinary action can be founded on wrong premises resulting in discontent. In wage and salary administration in particular, records play an important role. Easy retrieval of information for comparison is as important as the accuracy of the records. The use of modern techniques of personnel record-keeping for rapid search and retrieval is fast developing. Education especially has such a large number of employees as to warrant the use of computers for this purpose².
- f) Employees/personnel often are not involved in decisions affecting them. Participatory management has its greatest relevance in personnel management. Employees want to know that the "game is fair" and the best way to let them know is to involve them in personnel decisions. This also means that co-operative attitudes have to be adopted toward teachers association or unions.

What should be emphasized is that the morale of an organization is an extremely important prerequisite to its efficiency and effectiveness. The micro-level educational administrator must always keep this in mind.

13.4 Additional remarks

In the foregoing brief overview of issues, it is clear that personnel management is an important, if not the most, aspect of MLPM. So many programmes and actions depend upon how well can the people involved in the organization perform. Whereas this remains as one of the more difficult sensitive job for management in general, it presents itself in a certain specific way to a micro-planner-administrator.

The fact of being closer to the field situation and hence in frequent contact with most of the local functionaries requires that a micro-planner know how to handle the teaching staff directly or indirectly through the school headmasters and principals. To them he should represent the educational administration but at the same time a source of ideas and guidance for solving their problems.

2 For a detailed discussion of computerized educational management information systems (EMIS), please see Chapter 25.

Teacher transfer remains a perennial problem area. The micro-planner could be under immense pressure from individual teachers and their organization, for either making a transfer in posting or for withholding it from coming into effect. Local social and political leaders could also attempt to influence the micro-planner in his decisions or those of his superiors. It is important for the micro-planner to have a sound knowledge of the principles and practice of personnel management because even if he does not have to make a decision, he certainly would have to defend one. Similarly a micro-planner can also help his fellow administrators and teachers protect their rights of service, reward and promotion in a more effective manner if he is conversant with the personnel management aspects of the education department.

Moreover, the micro-planner can play a crucial role in staff development in the local area by providing the educational personnel with appropriate training and the right kind of leadership. Information regarding training courses, workshops and seminars could be disseminated and suitable candidates be sponsored to participate in these training events. By taking enough personal interest in the progress achieved and the follow-up, the micro-planner can contribute a lot towards the development of administrative and teaching staff in his jurisdiction. The next chapter deals exclusively with this and related issues.

Staff Development and Professionalization

14.1 The need for staff development

A truly professional education workforce is characterized by high standards of expertise, service, dedication, and public esteem. It is the duty of a micro-level manager to create the conditions for education personnel to further develop and become professionalized. This is staff development.

Staff development involves the preparation of personnel to carry out specific tasks, as well as the continuous provision of opportunities for further personal development both in terms of individual capabilities and career.

Development opportunities can be made available on a systematic and regular basis for all education personnel and at every stage of their careers. With recent technological and methodological break-through, it is possible, more than ever, to make staff development a permanent feature of the educational career.

With accelerating technological progress and rapid changes in all aspects of society and the working life, long-term comprehensive and co-ordinated schemes of staff development planning have become a necessity, to replace the previous haphazard and ad hoc types of training. Furthermore, there is the growing awareness of the need to organize continuous support in follow-up to training as an integral part of staff development.

14.2 Types of staff development

There are basically two types of staff development: formal and informal:

14.2.1 Formal staff development programmes

In most countries, formal staff development is set up and funded by the Ministry of Education and supplemented by local support. Staff development centres are established and attached to the teacher training colleges, universities, or it might take the form of staff training institute as in the case of Malaysia, which has established institutes to provide in-service training for both school-based and office-based educational personnel and also support staff such as secretaries and accounts clerk. Very often, it is up to the micro-level educational manager to make use of these staff development opportunities by recommending local educational personnel for training.

While such formal institutionalized staff development activities set up and funded by the Ministry of Education and other agencies may have advantages, this arrangement is not always practical and realistic at the micro-level. It is therefore important that separate schemes be also devised at the local level for formal staff development.

In the Philippines a national network of Learning Action Cells (LAC) has been organized. The Learning Action Cell involves the mobilization, monitoring and maintenance of learning team/cells with interlocking membership which constitutes the learning-base for skill acquisition or practice. It is at the

same time a regular forum for collaborative action planning and review in addressing specific instructional/supervisory concerns.

The LAC's are organized as follows at the micro-level:

- i) School-level learning action cell composed of targetted teachers in a school/school cluster, together with their respective principal(s), with the principal serving as the team leader.
- ii) District-level LAC composed of targetted headteachers/ principals in a given district, with the district supervisor as team leader.
- iii) Division-level LAC composed of district supervisor, division superintendent and assistant superintendent in a given division, with the division superintendent as team leader.

The organization of the Learning Action Cells is multi-level for the reason that experience has repeatedly shown that any significant organizational change occurs only when all affected organizational groups are prepared for and involved in the change process. Thus, the programme for reorientation involves the simultaneous participation of all levels of the Ministry of Education field organizations in a training system which integrates the learning concerns at every level with those at the next higher/lower level.

14.2.2 Informal staff development

Since the formal approach just discussed entails requirements in funding and specific expertise which may not be readily available at the micro-level, there is a growing trend towards the development of informal staff development approaches. A good example is the organization of small study groups to discuss pedagogical issues and experiences, methods and techniques, or review an educational article/topic in a book/periodical. Such study groups may meet once a week, with the chairmanship rotated among the group members including the principal/headmaster. In some countries, national newspaper play vital information roles by the coverage they give to educational issues, topics and news. Another approach is listening to a resource speaker in the area who will expound on a professional topic along his field of expertise.

The role of the micro-level educational manager is to promote the organization of such informal staff development activities, and to facilitate their proper functioning through appropriate guidance, support and regulations.

14.3 Considerations in a staff development activity¹

In this section, we shall focus on the process by which adults learn. In view of the multi-faceted and complex situation in which a micro planner operates, he would be called upon to organize formal and non-formal learning opportunities for the educational personnel in the local area. What is presented below are some of the essential considerations which may be kept in view while launching, participating or promoting any staff development programme.

1 See Duigman, Patrick: Professional Development of Staff. University of New England, New South Wales, Australia.

14.3.1 Learning process and constraints

First of all, it must be noted that *learning involves arousal and energy development* of the human body and mind. Hence for some one to be able to partake in the learning process it is essential that he be in a state to do so. The preparation of learning events should therefore take full account of the readiness of the targetted learner group. To ensure the attainment of the learning objectives, every effort should be made to avoid or reduce any kind of stress or anxiety that may arise in the course of training.

Stress, anxiety and the accompanying emotions interfere with adult learning in several ways. For example,

- Adult tend to begin learning programmes under some stress. Further arousal through the actions or demands of the teacher is counter-productive.
- Learning tends to increase the possibility of uncertainty and instability, which become causes for stress reactions.
- Adult do not like to appear upset in public, and any general stress reaction may cause an adult further stress as he tries to mask his emotions.

14.3.2 Positive self-image

Thus it is of immense importance to have a *right state of psyche* for one to become a learner. It is hard, if not altogether impossible, to make an unwilling person learn anything. On the other hand persons with positive self concept and high self-esteem are likely to be much keener learners. Thus in a staff development situation, every effort should be made to reinforce the positive image of an adult and nothing that is likely to mar his self-esteem should be allowed to get into the way of learning.

14.3.3 Past experience

It is in this sense that a person's past experience become very important for determining his capabilities to learn. One's past experience is organized and integrated into his self-concept and self-esteem. It determines his perception about the current situation and his ability to identify potential solutions. It can be an immensely important source of help. More importantly, as one grows older it gets reinforced and assumes even greater importance.

14.3.4 Individual learning process

It is partly due to this process that each learner tends to learn in his own individual way. Each one of them has his own cognitive style for processing information. It must fit with his own perception of problems, expectations and belief systems. Adult learners may utilize a variety of cognitive strategies. The most basic of these relate to:

- Type of information and its form of presentation and representation - Types and forms can vary from concrete and specific to abstract and general, and coding can be visual, auditory, enactive, or symbolic.
- Temporal and spatial aspects of experience - Temporal aspects provide for sequential learning; allow the learner to follow one facet of experience through time; and allow the learner to identify causal relationships. Spatial aspects provide for simultaneous learning; allow the learner to identify relationships other than casual; and allow the learner to examine a total experience from many view points.

- Investment of energy in learning - The energy invested varies with the strategy employed: from passive, reflecting, or observing to active, experimenting, or testing.
- Differentiating and integrating aspects of thinking - Differentiating allows the learner to separate experience, or the thing to be learned, into separate components for further examination. Integrating allows him to develop connecting links and relationships which result in a unified whole.

14.3.5 In relation to immediate needs

Adult learners enter learning programmes with immediate and personal needs, problems, feelings, hopes and expectations. They tend to focus on those problems, concerns, tasks, and needs of current life which are of *immediate relevance* to them. Felt needs provide them motive for learning. In this sense their learning process responds to their perceptions and is directed towards definite aims. The success which they may encounter in the learning process reinforces their keenness to follow on with their learning.

14.3.6 Participatory learning

If the learning requires inculcation of skills or strategies, the learner must himself participate in those activities so as to pick up the requisite abilities. Thus, it is always useful to have a number of such participatory activities built into such a staff development programme. Staff seminars, discussion groups and workshops are typically effective activities to bring together people to share experiences and concerns and to bounce off ideas on each other.

14.3.7 Application of new knowledge

Adult learners see learning opportunities as interruptions into their day-to-day activities. They would be keen to find out first whether they would learn anything by participating, and if so to learn as quickly as possible and then return back to resume their normal duties and activities applying the newly-acquired knowledge and skills.

In-service staff development programmes should therefore put emphasis on the practical aspects. And the plans should include learning activities which promote the use of all the cognitive strategies; learning resources which focus on all types of information in varying presentation forms; and learning processes which vary from passive to active.

14.4 Management issues in staff development programmes

There are a number of management questions and issues which need to be considered prior to initiating a staff development programme:

- (a) What answer can be given to staff who ask "Why do we need a staff development programme?"
- (b) Who will be responsible for doing the planning?
- (c) How will specific staff development needs be identified?
- (d) What is the balance between institutional priorities and individual needs?
- (e) Which staff should participate?
- (f) How flexible will be the programme be?

- (g) How can staff be motivated to participate?
- (h) How should the programme be scheduled?
- (i) Who will conduct the programme?
- (j) What instructional technique(s) work(s) best?
- (k) What publicity should be made of the programme and how should the programme be disseminated?
- (l) Should the programme be evaluated, and if so, how?
- (m) How should the programme be funded and what other kinds of support, besides funding, are needed?
- (n) What kind of follow-up support can be envisaged?

14.5 Suggestions for planning staff development programme

While at the stage of planning a staff development programme, the following guiding principles affecting the eventual implementation and further development of staff development programmes should be considered:

14.5.1 Process and involvements

Staff members are more likely to benefit when:

1. Activities are based on identified needs;
2. Activity objectives are specified;
3. Activities are chosen by participants;
4. Staff are involved on the planning/conducting team;
5. Planning represents shared interests;
6. Responsibility for co-ordination is delegated to staff personnel with both time and expertise; and
7. Staff perception of needs is utilized as well as other perceptions of programme needs.

14.5.2 General curriculum pattern and setting

Programme are more likely to accomplish their objectives when:

1. Activities are differentiated for participants;
2. Participants are actively rather than passively involved;
3. Programme content concerns immediate interests and needs rather than learning for later use; and
4. Participants are encouraged to interact with each other.

14.5.3 Content and evaluation

The programmes are likely to be more meaningful when:

1. Aims reflects individuals' professional performance goals;
2. Activities concentrate on improving performance on the job;
3. Projects emphasizes improving participants' effectiveness in the present position;
4. Activities emphasize renewal or retraining as well as basic training;
5. Evaluation is used to develop programme rather than just to "gather" data.

14.6 The role of the micro-level educational manager

Staff development is a crucial input for ensuring proper implementation at all levels. This is particularly so in view of the diverse and complex situation which a micro level manager has to face. Not only he himself needs to continuously upgrade his knowledge but that his staff and sub-ordinate educational personnel in the local area should also be provided opportunities for learning.

While the micro-manager is not expected to be an adult educator, it must be constantly kept in mind that his manifest behaviour is the single most important pace setter for others in the local area. Apart from this, there must be a common appreciation and understanding of the different possibilities and components of staff development activities so that the local educational personnel can optimally benefit from the training opportunities. It is therefore the duty of the micro-level educational manager to take sufficient interest in such programmes and to encourage and facilitate participation.

14.7 Strategies and methodologies for use in Staff Development Activities

The following table provides a summary of some of the strategies used in Staff Development Activities.

Strategy	Description	Characteristics	Required Skills
Lecture	Prepared verbal exposition by one speaker before an audience.	Can provide a lot of information quickly. Can be long. Participant passive.	Speaker should be interesting.
Lecture/Discussion	Lecture followed by question/answer.	Provides some participant activity.	Can indicate direction of participant's interest.
Panel/Discussion	Planned conversation before an audience, usually 3 or more speakers and leader.	Brings more points of view. Some participants passive except for hissing or applause.	Skills in formal debating.

Staff Development and Professionalization

Strategy	Description	Characteristica	Required Skills
Films	Provide content as well as entertainment.	May involve attitude learning as well as knowledge. Participants passive unless vicariously involved. Turning off lights. Provides opportunity for a nap.	Film must be relevant to topic and audience.
Videotape	As for film but lights remain on.	Flexible start and stop for discussion.	Same as film, but require videotape player and sufficient monitors large enough for easy viewing.
Demonstration	One or more people show "how it is done".	Participants passive, notoriously ineffective for improving participant skills, but may change attitudes by showing relevance and gaining an attitude of acceptance.	Skill to show correct procedure without offending.
Demonstration with Practice	Demonstration followed by an opportunity for participants to try.	One of the best means for learning simple skills. Provided feedback follows immediately without performance feedback, participant is likely to be reinforced in doing procedure incorrectly.	Ability to break procedure down into simple communicable steps. Ability to provide helpful feedback. Patience.
Individual Reading	A tried and true method by no means outdated.	Useful to provide background knowledge. Participants active. Little up-front control.	Requires skill to select relevant material. Requires reading skill on part of participants.
Read and Discuss	Usually short reading assignment followed by small group discussion.	Requires more activity than individual reading. More up-front control if leader assigned to discussion group.	Same as for reading.

Strategy	Description	Characteristica	Required skills
Group discussion	Open discussion of a given topic in a small group. May or may not have assigned leader or time limit.	Participants active. Appointed group leaders may retain control.	Skill in giving instructions that will get discussion going and keep it on target.
Buzz Groups	Usually short discussions of a given topic; set time limit; no leader. Normally groups of 3 and 5.	Usually groups asked to report conclusions back to larger groups. Participants active.	Ability to give clear, crisp instructions.
Brain Storming	A method of problem-solving (or listing) in which group members suggest in rapid fire order all the possible solutions (or problems) they can think of. Criticism and discussion are ruled out while suggestions are being made. Often set time limit. Evaluation follows listing.	Internally participant-active. More ideas and a wider range of ideas than generated by a typical discussion.	The ability to communicate the ground rules and enforce them. Ability to accept "far out" ideas.
Case study	An account of a problems situation including sufficient detail to make it possible to groups to analyse the problems involved.	May focus on problem-solving skills as well as knowledge. Provides a simulated situation drawn from real life which gives participants an opportunity to apply previously learned knowledge. Participants active.	Requires both knowledge and skill needed to solve the problem. May require the skill to design your own case study. Questioning skills also useful.

In Basket	A form of case study in which letters, memos, phone messages, etc. are given to the participant playing an assignment role. He is given time to write actual response to the items. After time has passed, participants form groups to discuss their work. Group leader may be assigned.	Time limit often provides pressure. Participants active. Allows participants to apply previously learned knowledge.	Knowledge of appropriate policies and ability to critique responses.
Strategy	Description	Characteristica	Required Skills
Role Play	An unrehearsed, dramatic enactment of a response to a situation. A human encounter involving one or more persons in "playing-like". Participants may either choose or be assigned roles. Roles may be written or merely outlined by leader. They may be specified or open to ad-lib.	Useful in practising communication skills when no one right answer will measure attainment of desired behaviour. Method requires a good deal of adulthood on the part of participants and understanding on part of leader.	Skill of getting participants to accept roles, in creating climate of trust, in keeping them <i>doing</i> rather than <i>saying</i> . Requires sensitivity to stop role play when it is threatening or over-dramatic. Requires skill to help the group process their feelings and to provide helpful feedback.
Simulations	Written roles and situational details trigger interactions similar to real life, contain a carefully arranged competitive element.	Designed to involve participant. Used for knowledge application and skills practice in problem analysis, decision-making problem-solving.	Good, assertive, firm direction-giving ability. Knowledge of games to be used.
Games (Games and simulations often used synonymously)	Board game on which action takes place. Designed to simulate actions taken in real life. Usually a specified set of rules for playing the game.	High involvement by participants. Need to extract the learnings for "real life situations". Danger in participants becoming too involved in the "game" and neglecting the learning.	Ability to see action in a total framework. Creativity to design the Game and Board.

Management of Committees and Groups

15.1 Promoting community participation in MLPM

A major characteristic of micro-level educational planning and management is the promotion of active involvement of people at the local level - in the collection and exchange of information and resources, and their contribution to actual planning and management functions. For this purpose, the micro-planner promotes the forming of local committees and forums to gather inputs for decision-making, such as local school councils, education committees, and the parent-teacher associations. Management of committees is therefore one of the important tasks in MLPM that a micro-planner should have sound understanding about its functions and modalities.

15.2 Why to involve a group of people or form a committee

There are both advantages and disadvantages in using groups of people, or committees. Some of these are given below:

15.2.1 Assets of committees

- i. *Greater knowledge and information* - There is more information, experience, and competencies collectively in a group than in any one of its members individually.
- ii. *Greater variety of approaches* - Each person brings a different perspective, and these different ways of viewing the world can open avenues of consideration outside the awareness of any single individual. In addition, individuals can get into "ruts" in their thinking, or into patterned ways of defining problems and approaching issues. Assembling a number of people expands the potential ways a particular problem can be approached.
- iii. *Increased acceptance* - When a group has an active part in the decision-making process, its ownership of the outcome is increased. The responsibility people feel for making the solution work is enhanced. When an individual alone solves a problem, two additional problems remain - persuading others to accept the solution and to carry it out.
- iv. *Reduced communication problems* - The implementation of a decision is likely to be smoother and require less supervision when people know the goals and obstacles, the alternatives that were considered but rejected, and the facts and opinions associated with making the decision.

15.2.2 Liabilities of committees

- i. *Social pressures to conform* - In their desire to be good group members, or to be accepted by other members, people sometimes keep their disagreements to themselves (or voice them only to close friends after a meeting).
- ii. *Quick convergence* - In a group, there is frequently a tendency to seize quickly on a solution that seems to have support. Ideas of higher quality that are introduced late in a discussion may have little chance of real consideration.

- iii. *A dominant individual* - Sometimes one person may dominate because of status, activity level, verbal skills, or stubborn persistence - all of which may be unrelated to competence in the particular task facing the group.
- iv. *Secondary goals or hidden agendas* - Often individuals work simultaneously on the assigned task and on their own needs (usually covertly). Their hidden agendas may include personal pride and interest, protection of one's own position or department, desires for visibility or acceptance, or personality conflicts with others who are present.
- v. *Time constraints* - Available time may restrict the group's potential. It simply takes more time for a group to make a decision than it does for a single individual.
- vi. *Problems with disagreement* - Disagreement affects people differently, and hard feelings between individuals may block the group's progress. Some people experience disagreement as a cue to attack; others react to conflict and controversy by freezing or withdrawing. It should however be noted that, when disagreement is well managed, new ideas and innovative solutions are often the outcomes.

15.3 Questions to consider when establishing a committee¹

The choice to form a committee is to a large extent conditioned by a variety of considerations. The micro-planner should first attempt to find satisfactory responses to the following questions before the choice can be made :

- a) Is there sufficient local support for the committee, or would there be opposition?
- b) Are teachers, parents, pupils, local community leaders, or other "experts" to be involved?
- c) Is the committee to be appointed or elected, and, if so, by whom? If volunteers are to participate, how?
- d) How many people will be on the committee?
- e) Are committee members to be representative of different interest groups?
- f) What office bearers will there be? How will they be chosen? What will be their term of office?
- g) What areas should the committee look at first? How will this be decided?
- h) How will the new areas of committee involvement be initiated?
- i) How will opportunities for continuing involvement be created and maintained?
- j) How will apathy or resistance be overcome or handled?
- k) How will the community served by the committee be kept informed of meeting times and places, committee decisions, and background material for meetings and agendas?
- l) Are there going to be sub-committees?

If so, will they be permanent or will sub-committees be organized as the need arises?

What will be the relationship of the sub-committee to the full committee?

¹ *Destination Decisions: Decision Making Strategies for School Communities*, Curriculum Branch, Education Department of Victoria, Australia 1985.

- m) Will the committee receive financial support e.g. secretarial help, money for special purposes?
- n) What powers and authority will the committee have?
- o) What form will committee meetings take?

How often will the committee meet?

Where and when will meetings be held?

15.4 Some guidelines on committee procedures

To ensure that a committee functions more effectively, the micro planner may wish to follow certain guidelines on rules of operations and procedures of committees. Some guidelines are provided below:

- a) Meet in an appropriate place. A meeting is best held in a "neutral" place.
- b) Consider the group size. Three people do not generate enough interaction, thirty people make participation too difficult.
- c) Focus on group problems. Often putting a member "on the spot", or forcing people to take sides, will increase debate, raise tensions and reduce the worth of the meeting.
- d) Goals should be decided by the group. The aim is to increase member involvement, not to restrict members with rules.
- e) The group should draw up an agenda and this should be changed as new goals or needs arise. Planning is necessary but it should always be flexible.
- f) Usually discussion should continue until consensus is reached. Sometimes it may be useful to have a short break during the proceedings to enable the members to sort out the issue informally, before taking a formal decision.
- g) From time to time, the group should stop to evaluate its performance and consider whether it is working efficiently and effectively.

15.5 Some examples of committees

Depending on the purpose and composition, there may be different types of committees. The micro-planner should consider the appropriate type of committee to meet the objectives and requirements of the tasks to be performed. Some typical examples of committee are presented below:

15.5.1 Special issue committee

Unexpected difficulties happen in any organization or educational system. A special committee may be formed to consider the pros and cons of an issue and thus solve the problem quickly.

Procedure for establishing a special issue committee are :

- i. The decision maker should choose people who are involved with the problem, affected by it, or interested in it. Usually not more than ten to twelve people should be called to the meeting.
- ii. At the meeting, the problem is explained to the group.

- iii. Individuals tell what they know about the problem.
- iv. After each person speaks, the rest of the group asks questions so that the problem is better understood.
- v. The group determines just what the problem is. Sometimes there will be associated problems. These can be noted.
- vi. The group may like to divide itself into two or three smaller groups to consider possible solutions and a plan of action. Each small group is asked to keep a record of their work.
- vii. Each group presents its views to the others and agreement is reached on the final action plan, or recommendations.
- viii. Individuals should carry out any tasks assigned by the meeting and should report their progress as needed.

15.5.2 Task force

A task force is composed of a group of people who are chosen to work on a particular issue. For example a task force may be given the task of considering a particular school as a whole and then bringing about overall improvement.

By way of an example, if the issue is overall improvement of a school in a district or region, the following process could be followed:

- i. A regional person may help organize the task force and advise the group as to ways in which the work could be tackled, he should be able to link the group to outside resources.
- ii. A group of say, five to fifteen people may constitute the task force. A task force may consist of teachers from the school or from different schools in the local area, administrators, parents, and local leaders, etc.
- iii. Identify the major problem(s) of the school, using surveys, meetings, etc. This stage may sometimes take several months. If the region is very big then it could also take a year, or more. Depending on the commitments of task force members and the way they have chosen to tackle their task, this time would ofcourse vary.

It may also be better to clarify the goals and capacities of the school rather than to try to identify the deficiencies of the school. Seeking deficiencies is a negative step and people may be reluctant to talk. On the other hand, talking of goals, the challenges to education of society today and in the near future, and the strengths of the school is likely to generate co-operation and commitment.

- iv. Decide how much room there is for improvement.
- v. Consider what improvements might be possible, don't assume that readymade solutions exist, nor that a bandwagon is going in a desirable direction. Avoid making any decisions until the various options have been discussed and evaluated.
- vi. Decide on a plan. Set the plan in motion and see if it works. Check that the operations match the plan, and adjust the plan and/or operations as necessary.

- vii. Identify and evaluate what has happened. Setting up a rigid schedule for a task force may not be always a good idea.

15.5.3 Open forum

It may be desirable in some circumstances that a specific time be set aside regularly for the unrestricted discussion of common concerns. Such a meeting should be informal and should be an opportunity for sharing problems and, maybe, for solving them. It is vital that every one feels that he/she can honestly state his/her own concern. It should be ensured that no one's concerns are ignored, mocked or belittled.

An open forum can be a sign of a healthy organizational climate, however, the school must have people who are responsible for dealing with the problems or concerns that are raised at these meetings.

15.5.4 The formal meeting²

Formal meetings are held to arrive at a decision after orderly discussion. A formal meeting should provide:

- a) orderly discussion;
- b) the right of all present to be heard; and
- c) protection of minorities.

In a formal meeting there are Meeting Procedures and Rules for Debate. The Chairman must be conversant with such rules to prevent delays, indecision, inconsistency, confusion, and dictatorship or "bulldozing".

He must allow the meeting to make free decisions with simplicity and expediency.

A. *The Chairman's* duties at a formal meeting are:

- a) To prepare for the meeting;
- b) To preside at the meeting;
- c) To preserve order;
- d) To conduct the meeting in accordance with the Standing Orders or the Rules of Procedure of the particular body which is meeting;
- e) To ensure that proper notice of the meeting is given;
- f) To establish that a quorum is in attendance;
- g) To insist upon the proper conduct of debate;
- h) To give the speaker the call to speak;
- i) To be impartial;
- j) To give firm rulings;

2 Pam Cahir: Working with People. Institute of Educational Administration, Victoria, Australia 1985.

- k) To guide along relevant lines;
- l) To give all persons the opportunity to speak and to vote;
- m) To put motions to the vote;
- n) To declare the vote; and
- o) To assist him with the meeting a Chairman should have a Secretary.

B. *The Secretary's* duties are:

- a) To issue notice of the meeting;
- b) To arrange the meeting place and admission to the meeting;
- c) To prepare an agenda;
- d) To record the minutes;
- e) To keep the chairman informed of any matter which may assist or invalidate proceedings at the meetings;
- f) To write letters in accordance with the instructions of the meeting;

15.5.5 An agenda

An agenda is a programme drawn up by the secretary, showing the proposed order in which each item of business will be discussed at the meeting. Both the Chairman and the Secretary should be thoroughly familiar with the Agenda. An agenda is necessary in order to :

- a) To bring the work to be done before the meeting in a systematic manner;
- b) To establish the order of work;
- c) To give every member notice of the matters to be discussed and the order in which they will be considered;
- d) To ensure that no item of work is missed.

A sample of agenda for an ordinary committee meeting would read:

- a) Opening of meeting
- b) Apologies for non-attendance
- c) Welcoming visitors
- d) Confirmation of minutes of previous meeting
- e) Matters arising from minutes
- f) Correspondence (presentation and receipt)
- g) Treasurer's report
- h) Accounts for payment
- i) Secretary's report and recommendations

- j) Reports from other persons and recommendations
- k) Notice of motions for subsequent meetings
- l) Motions of which notice has been given
- m) Special business
- n) General business
- o) Date and place of next meeting
- p) Any other item with the permission of the Chair
- q) Closure

15.5.6 A quorum

A quorum is the minimum number of persons which may constitute a meeting. Its size is usually governed by the Constitution. A quorum is necessary to ensure that the discussion and decisions are made by a representative gathering. A quorum should be large enough so as to be representative and small enough so as to be obtained.

At a formal meeting, correct record of the proceedings of the meeting must be kept. The *minutes* (which are recorded by the secretary) provide the meeting and the organization with:

- a) a record
- b) a reference and guide
- c) an attendance record
- d) reports on matters of importance
- e) a legally acceptable record of proceedings

After the Minutes of the previous meeting have been read, the chairman will usually declare - "You have heard the Minutes of the previous meeting. Are there any corrections or additions? If there are none, I will sign the minutes as a correct record". Generally the meeting will accept an addition or correction without disagreement. If there is any objection then the chairman will call for a motion to amend the Minutes and the subsequent vote will determine if the Minutes are to be amended.

A person wishing to speak at a formal meeting should rise and address the chairman. The chairman will normally recognize the first person to rise after the floor has been yielded by the previous speaker. If more than one person requests the floor while a debate is on, certain rules apply:

- a) The mover of the motion to be considered is always called to speak first, in order that he can explain the motion.
- b) Each member may speak only once to each separate motion or amendment even though all other members may have spoken and even though no other person desired to speak on the matter. However, the mover of the original motion is normally entitled to a right of reply (immediately prior to the motion being put to the vote), or immediately before the first amendment to a motion is put to the vote, (whichever occurs first) providing the motion is still in its original form, and the "gag" has not been applied.

- c) The chairman should select speakers alternately from those supporting and those opposing the motion.
- d) The chairman may permit a member who has already spoken to speak again briefly in order to give a personal explanation.

The *motion* is the frame upon which the meeting arrives at a decision as to what is proposed to be done and how it is proposed to be accomplished. It must be worded in an affirmative manner. It is the focal point of discussion.

A member should move a motion by saying "Mr. Chairman, I move that". After the motion has been accepted by the chairman and seconded, the mover will be called upon to speak in support of it.

The chairman will then call for a seconder. The purpose of requiring a seconder is to ensure that the matter is of sufficient interest to warrant discussion and indicates that more than one person present is in favour of the subject being discussed. The seconder stands and says, "Mr. Chairman I second the motion". The seconder may reserve the right to speak to the motion until later. A motion of amendment may be withdrawn at the request of the mover provided he obtains the consent of the seconder and the approval of the meeting.

15.6 Developing collaboration among participants in group decision-making process

The micro-planner must at all times be sensitive to the approach taken to group decision-making. A successful decision is one which will be acted upon and carried out in an atmosphere of harmony and co-operation. On many occasions, the way we make decisions causes more conflict than the decisions themselves. Every effort should be made to avoid making decisions which cause ill-will and frustration. The aim should be to achieve as much consensus as possible.

15.6.1 Consensus - a definition

Consensus means working toward a decision that is agreed to by the whole group, and not just by a few powerful members. A consensus will thus be supported by the whole group. It is a process which required participation by all, negotiations, and time.

15.6.2 Benefits of working in a collaborative way

There are many benefits to working in a collaborative way:

- i. It is a safeguard against decisions being made by the few who do not represent or understand the interests of the many;
- ii. It is a safeguard against prejudice and inaccuracy;
- iii. While people are working together to achieve consensus, mutual understanding grows on everyone's part because several perspectives on an issue are aired;
- iv. Much personal development occurs - in knowledge, insights and skills;
- v. People are able to air their feelings in a constructive way; and
- vi. The breadth of experience and enthusiasm of a wide range of people is not lost.

15.6.3 Values underlying the collaborative approach

Underlying a collaborative approach are certain valued behaviour and attitudes. These are:

- i. honesty;
- ii. openness;
- iii. a high degree of consultation with those affected by decisions;
- iv. a high degree of communication and information sharing;
- v. willingness to confront issues;
- vi. mutual trust, respect and support;
- vii. maximum participation by everyone;
- viii. use of consensus wherever possible, as opposed to majority vote.

d) Roles and responsibilities in collaborative settings

In a collaborative situation, all members of the group have certain responsibilities to :

- i. maintain those prerequisites of collaboration;
- ii. carry out agreed tasks, be prepared, make use of information given;
- iii. look for alternatives for action with the interaction of the group rather than present already prepared recommendations for endorsement;
- iv. relate to and represent the group who elected them;
- v. service new members;
- vi. give encouragement to others;
- vii. keep some order, be relevant to the agreed agenda;
- viii. be as clear as possible;
- ix. participate;
- x. avoid interrupting or indulging in private conversation;
- xi. listen; and
- xii. take responsibility for decision.

The leadership role is very much one of being a facilitator. The chair should see that the aims are worked towards and the tasks are completed. He should ensure that the situation is created where all can contribute in a way that is respected by all. He should be sensitive to the balance between working effectively, through the agenda while allowing personal development and good relations among people to be fostered.

Beside a chairperson, a collaborative decision-making group should also have an executive officer who should service the needs of the committee in terms of communication, record keeping and information.

15.6.4 Guidelines for developing consensus in group decision-making situations

To develop consensus, one should :

- i. Begin by having all persons involved express their personal objectives, needs and views;
- ii. Seek to agree upon a single objective or a set of objectives acceptable to all;
- iii. Consciously focus upon defeating the problem and not each other;
- iv. Avoid compromising procedures such as voting, trading or bargaining;
- v. Attempt to deal with factual information to resolve problems. It is important to recognise and admit when there is no factual evidence to support a position;
- vi. Recognize that the values and views of each person play an important part in causing and also resolving conflicts. If two suggested solutions are of equal merit, but the first has strong opposition to it by several persons, and the second has no major objectors, then the latter solution will more easily achieve consensus;
- vii. Accept conflict or disagreement as a helpful and productive contribution providing it does not produce threats or defensiveness;
- viii. Avoid personal behaviour that will exclude or ignore the personal needs and objectives of others;
- ix. Be prepared to examine objectively and compare your ideas with others in terms of which one can best meet the agreed-upon overall objectives; and
- x. When disagreement arises, ask questions to determine the specific points of conflict and refer to the common objectives for guiding towards resolution.

Communication

16.1 The role of communication for micro-planning

Communication in the context of MLPM is a dynamic process by which someone who has a purpose to accomplish, tries to get others to be involved in doing something for achieving that purpose. In the implementation of educational programmes, effective communication among schools and between schools and the community is an important requirement. Communication is such a vital element that it helps propel educational activities towards the right direction according to plan. In any organization, the executives performing management functions spend as much as 90 per cent of their time in receiving, interpreting, and issuing communications. Communications, therefore, form the cohesive bond among organizational members and between schools and the community in the local area.

A direct consequence of the variety and complexity of educational programmes is the establishment of different government departments and agencies responsible for each of the aspects, such as those dealing with formal or non-formal education. Quite often it has been found that, even though the state policy on education may be provided in a broad perspective, the interpretation into operational terms could cause a high degree of distortion at the micro-level. The repersussions could be realized through conflicts, contradictions and the overlapping of various educational projects developed by different educational departments and institutions at the micro level.

It is fortunate that many countries have realized the importance of decentralization and the delegation of authority to the local bodies. Hence, more responsibilities are being given to a broad spectrum of micro-level educational planners and managers, for them to fulfill the expectations by carrying out the state policies to reality and in harmony. Since there are numerous educational institutions scattered over the country ranging from primary schools, secondary and technical/vocational schools, to universities, and to literacy and other non-formal educational programmes, it is vital to establish a mechanism for co-ordination and communication.

16.2 Types of communication

In general, there are two directions of communication: vertical and horizontal. Vertical communication occurs between sub-components at various levels of the educational administration. For instance, the communication between the local education office and the school in regard to giving directives and reporting information can be considered as vertical. Within a school, the principal has a basic vertical communication role in relation to his staff, namely in explaining and interpreting the administrative directives.

Equally important is the quality of communication from the school to the local education office, for which the school principal is responsible. This implies much more than filling of forms and regular dispatch of statistics. It is the principal's skill and initiative as a communicator to get the administrative superiors to understand the condition of the school, problems faced, and needs. The same applies to the micro-level educational planner and managers vis-a-vis higher administrative levels.

Typical examples of horizontal communication include inter-departmental co-ordination within the educational administration, as well as inter-sectoral communication between, say, the local education office and relevant department in other sectors. In MLPM, a very important type of horizontal communication is of course the interactions between the school and the community that surrounds it.

16.3 Communication role of micro-planner

The basic communication role of a micro-level educational planner is to ensure the smooth vertical and horizontal flow of information. The establishment of two-way dialogues and exchanges of information, downwards with the schools and upwards with higher levels of the educational administration, are therefore essential. In this process, the micro-level educational planner should not be contented with the postman function of transferring information between the schools and higher levels, but rather take an active stance in defining information requirements and in making use of the information received in actual micro-planning and management. Similarly, the systematic operation of channels of communication with local departments and agencies belonging to other sectors, would be crucial to the realization of the multi-sectoral approach to micro-level educational planning and management.

Moreover, it is the task of the micro-planner to promote communication between schools, and between the schools and the community, for the main purpose of achieving better resource mobilization and management. It is through encouragement of participatory management under the school cluster system and with the involvement of the local community that true effectiveness and efficiency of education in response to local educational needs can be accomplished.

Vis-a-vis the schools, the community, and other sectors in the local area, the micro-planner is regarded as the spokesman for the education system, and he is responsible for communicating to them the state policies, plans, operational directives in education, as well as reporting to them on the status of development and progress made. Inversely, he is called upon to listen to their opinions and needs in respect of education and training, and to either take direct actions or refer to higher levels.

16.4 Organizational structure

A mechanism for co-ordination and communication is an essential aspect that can determine the effectiveness of the educational management system at micro level. In many cases, an organization serving such mechanism may be similar to an educational management committee at district or school level which consists of representatives from various educational agencies within the specified administrative boundaries. This organization could be set up formally by directives discharged by the central government or it could be organized through co-operation among the local educational officials and community leaders. The essence of this notion is not how the organization is set up, but rather on the functions it can perform.

As mentioned in Chapter 11, a micro-level planner is to focus on the relevance of the educational project to local needs and to co-ordinate effectively with other institutions to bring about the most effective utilization of resources. Information about different aspects of educational problems should be sufficiently available to enable micro-planners understand the overall educational needs. Incomplete information consisting of bits and pieces of data which lack continuity and consistency with the rest of the system could only lead to wrong decisions and confusions. This concept is a prerequisite before a micro-planner can proceed to develop a sensible project.

Even though the existing planning and administration structures in different countries may vary in respect to the organization setup for micro-level educational planning and management, there are some

degrees of commonality to be expected in either the formal or informal organization of an educational management committee at district or school level. This type of organization could strengthen the lines of communication at the local level, since it comprises representatives from all educational institutions within the area and local community members. The responsible education officer should perform the key role of promoting the horizontal lines of communication across educational institutions, across the development sectors, and between the educational system and the community. Educational representatives in the organization could be principals of public primary and secondary schools, headmasters of private schools, rectors of community colleges, directors of non-formal and adult education programmes, education statisticians, researchers, etc. Meanwhile, representatives from other development sectors could be community development officers, agriculture extension officers, public health officers, and community representatives. The concept of utilizing this type of organization is to provide a communication channel for all responsible agencies, not only for educational institutions, but for other related agencies and community representatives as well.

16.5 Functions of the communication organization

Through this organization, the central educational policies will be reviewed by the agents involved at the micro level in order to obtain a correct common understanding and a uniform interpretation. In addition, the committee members could share the educational needs of the local people in regard to different aspects of education. At this stage, the availability of information becomes crucial, especially of educational indicators reflecting the situation of education and the problems. Once these problems are analyzed, shared and synthesized, the committee could draw the connections between local needs and the central policies before proposing possible solutions. The process of plan formulation continues until the solutions are agreed upon. After that, each representative follows the committee resolutions in developing project proposals to be submitted to the respective central departments for approval.

An observation to be made at this point is that, the role of operational staff and micro-planners should be to co-ordinate and facilitate horizontal communication. A micro-planner should be able to synthesize central policies of various departments and interweave them with the local needs before a project proposal is developed and submitted to the central departments.

16.6 Additional considerations

In both types of communication, namely vertical and horizontal, the most important point to be made is that it must be two-way or even multi-dimensional in order to be useful to decision-making. In the case of scattered communities where schools have to operate in relative isolation, effective communication becomes crucial. Infrastructure regarding communication system needs to be established. School principals and district administrators should be trained in the analysis and communication of information, and be able to take appropriate action accordingly.

In addition, the central agencies should consider seriously to strengthen mechanisms for co-ordination and promote the development of educational management information systems (EMIS)¹. It might be necessary to formally establish such EMIS centres at the micro level to assist in the communication of information for co-ordination, planning and management. Necessarily, the provision of sufficient resources

1 See Chapter 25.

and personnel is required, and training opportunities in relation to skills in information management and communication.

Part IV

Financial Management

This part deals with micro-level financial analysis and management. Education being one of the largest undertaking in most countries, involves considerable investment in resources. It is hence important that the pursuit of economic efficiency be accorded a high priority.

Financial and economic analysis has to be undertaken at all the levels, and at all the stages of planning and management. In this sense, this theme is concurrent and runs parallel to all other chapters in the Handbook.

This part contains three chapters. The first: Chapter 17 deals with financial and expenditure analysis. It discusses selected concepts and issues in the context of MLPM, and the different sources from which educational revenue is collected.

Budgeting is covered in Chapter 18, where the stages which are involved in the preparation of budget are explained. Budget being an instrument of planning and controlling the expenditure of resources, has its particular characteristics at the micro level where the micro-planner has the liberty to tap additional local funding to supplement allocations from higher levels of the educational administration.

Ways and means to mobilize local resources are therefore the theme of Chapter 19, where the different sources which are capable of contributing towards educational development at the micro level are listed.

Financial and Expenditure Analysis

17.1 The context

The micro-level educational planner operates within a financial environment consisting of two major components:

- Financial resources or funds which are received from the central/provincial government and which are generally 'fixed' for the duration of the fiscal year; and
- Financial resources which can be obtained directly from the local area or district and from various enterprises, communities and interests groups within these areas or districts. These funds are not necessarily fixed and bound within a limited period of time.

Within this financial environment the major tasks or goals of the micro-planner will be to ensure:

- a) Full understanding of the financial context in which planning is to occur;
- b) That the planned-for resources are available when required; and
- c) That the resources obtained whether from the government or elsewhere are properly and most effectively utilized in pursuit of the established goals of the education system at the micro-level.

Indeed, the proper matching of available financial resources on the one hand and the optimal allocation and utilization of resources on the other is essential if both the goals of short and long-term priority are to be achieved.

Whilst it is likely that some of the staff at the micro managerial level will have the skills and knowledge to establish and operate appropriate financial and accounting procedures, it is important that the micro-planner be not only the leader in the development of local educational strategies, plans and projects but that he also be financing and accounting 'literate'. It is only by being able to understand both sides of the educational planning story - the pedagogical and the financial, or put another way, the goals which the system at the micro-level aspires to and the resources which are required and are currently available to achieve those goals - that the micro-planner can be reasonably certain of effective progress.

It is therefore vital that the micro-planner:

- a) understands the financial implications of the plans developed at and for the local area;
- b) has a clear view at any given point in time of the 'present state' of finances, of surpluses or deficits, of cash flow problems, etc.;
- c) be able to mobilize additional funds and ensure of their optimal allocation and utilization; and
- d) be ready to evaluate the financial effectiveness of the plans and even be able to provide for higher authority as well as local funding sources some forward financial planning which will ensure continued progress towards the goals of local education.

17.2 Finance

Mobilization of resources and their proper utilization for pre-determined educational endeavours is a main task of educational planners at both the macro and micro level. The analysis of educational finances, educational expenditure and allocation and modes of transfer of resources from one level to another involves:

- i. The use of certain common categories of concepts; and
- ii. An understanding of one's own position and its relationship with others in the hierarchy of the financial network.

Thus, it would seem that a micro-planner has to have:

- i. A global view of finances and cost analysis, and
- ii. A detailed understanding about the potential of his own local area.

The latter is particularly important as it would help in augmenting the resource kitty which is generally found to be limited and "tied-up" at the local level. In terms of sources of funds at the micro-level there can be revenues collected by the local or higher-level governments, tax-like cess or excise, voluntary contributions from local nongovernmental bodies, school fees paid by parents, loans, donations, etc.

17.2.1 Some thoughts underlying educational finance and expenditure

Education over the ages has been treated as a "preferred" commodity. Every society wants its members to have more education due to the benefits that education yields. However, the *spread of benefits of education* ("spill-over" effects), fortunately, is not confined only to those who are educated, but also reaches out to other members of society. This particular characteristic provides a justification for education being promoted by society. It is due to this inherent characteristic of education (known in public economics literature as *merit good characteristics*) and its "externality" (in the sense that an individual cannot totally appropriate the benefits to himself by excluding the other social members from fall-out gains) that many societies choose to provide education and pay for it.

In other words, when society intervenes in altering the preference of individuals in favour of education, or of more education, or of a certain type of education, it chooses to bear all, or a part, of the burden of providing education. The extent and magnitude of subsidy is directly related to this social propensity to alter individual preferences; the latter, in turn, is based upon its evaluation of education.

17.2.2 Varying social concern

A micro-planner may find that the social groups in the different local areas share this overall societal concern and enthusiasm rather differently. They may be more enthusiastic, or may be indifferent as to its provision. Depending upon their disposition, a micro planner may be able to set in motion several activities which would not only help in the achievement of the overall social gains but it would also help the local members to secure immediate gains. It is the variation in this disposition that imparts basic direction to the functioning of the micro-planner and also determines the extent of resources which he can muster to bring about educational development.

For the sake of further elaboration it is useful to focus on the "society" and isolate two of its important organs which are critical for educational finance and expenditure analysis. These may be described as government and nongovernmental organizations.

17.2.3 Government organizations

Governmental organizations may include national, state and local governments. All of these may raise resources from their different jurisdictions. For example, national governments may raise revenue from one kind of tax e.g. on income, while the state/provincial governments may levy taxes in the form of cess or excise; and local government may collect revenues based on land holdings. It is not uncommon to find that irrespective of the collection different organs of government may make, there are some internal transfers to each other according to some agreed upon fiscal arrangements. This is particularly relevant for the federated nation states.

It may be observed that the process of decentralization and the micro level planning entails some such fiscal arrangements to be developed. These are usually necessitated because different micro areas would have different tax-capabilities. Emphasis on equal educational opportunity would necessitate some kind of assistance as to the provision of a minimum standard of education in all local areas irrespective of economic conditions. In financial terms it boils down to *compensatory transfers* to different micro areas, for equalizing their potential.

In other words, it is not only the innate attitude of a particular local area to provide education that determines the extent of financial liability but also that it is their "ability to pay" which governs the actual provision of education at that level. It is the micro-planner who can assess the correspondence between two facets as they may operate in his local area. It is in this sense that micro planning tends to tailor education and its financial burden according to the local requirements.

17.2.4 Grants, transfers and subsidies

Here it may also be observed that such inter-governmental or even inter-institutional transfers may be of two types, *tied* and *untied*. The former are transfers with clear earmarking to be spent on certain specific budget headings. These cannot be re-allocated or re-appropriated by the recipients, and certainly not without explicit permission of the transferring authorities. Tied grants are necessary to bring about the desired change in specific priority areas. As opposed to this, untied transfers tend to augment the general pool of resources of the recipients. It is by easing the general financial stringency that the untied transfers seek to assist the provision of education and/or other services. However, it leaves the decision of precise allocation of resources to education to the local government/institution. In this sense, untied grants are similar to *block grants* in which a fixed lumpsum is transferred, to be further allocated to the different sectors/services by the recipients themselves. As opposed to this, tied grants are meant for only specific programmes/projects and schemes.

A micro-planner has to be aware of these differences as different financial arrangements affect the preferences of the local community differently. Tied grants, even when meant for educational development, may not be effective, as the community may not be in a position to identify itself with the proposed programme. On the other hand, a general transfer, while always in danger of being usurped by short-term myopic considerations, may be more effective by evoking the interest and participation of the community. Needless to say, it requires very cautious and delicate handling, as even a little overdoing on either side could preclude optimal performance.

17.2.5 Non-governmental organizations

The other segment or social organ which may be a source of funds is the *non-governmental organizations* and voluntary organizations such as foundations, trusts and other endowments. These denote various individuals, social groups and corporate entities who over and above their contributions to the general pool of revenues, set aside more money for educational development. The major distinction that these organizations have is that they usually single out certain specific aspects of education and focus their efforts there on. They may launch special courses, or provide special assistance to some specific departments or centres of study. They may also promote institutions on their own.

In almost all cases the magnitude of their contribution, when judged in comparison to the overall investment, is rather limited. But their contribution lies in being able to impart that vital drive to the educational programmes which helps in keeping education on the track. A micro-planner has to be able to identify such possible sources of financial help either from within his local area or outside.

Financing from non-governmental sources would not only help in supplementing the state resources in any micro area, but more importantly, it provides a certain *leadership in education* at local level. It helps people to identify themselves with educational programmes. Monitoring and supervision of micro level education becomes somewhat easier under these conditions.

17.2.6 Private contributions

In addition to the two organs of social inputs into education which have been briefly described above, there are *private channels of financial contributions*. The pupils who seek education may have their families contribute in terms of fees and by spending on stationary, books, transport and other such items. More importantly, the seekers of education pay by foregoing the possible earnings they could have had, if they were not engaged in studies (known as "*opportunity cost*").

Private contributions to the educational process contribute in several ways to educational development. At the micro level, an educational planner is in a position to know the different capabilities of various groups to pay for education. Thus the micro-planner can gauge better the varying incidence (ultimate financial burden) of education for different groups. He can, on this basis then set in motion different planning interventions which would ensure full utilization of the funds for consistent growth of education along the desired lines.

17.2.7 Multiple sources of funds

The different social organizations can always choose to finance the students either in addition to funding educational institutions or in lieu of it. Such a relocation of funds have some significant implication for educational development. They can choose the institutions and/or the courses of their choice. They may also prefer those institutions which are run in a better manner. Thus this shift of financial arrangements has several implications for an educational system, the courses they offer and the quality of education.

At the micro level the financial controls are usually minimal, but it is of some significance for the micro-planner to discern the flow of funds which feed the educational system. Depending on the number of students the micro-planner may be able to plan some educational programmes at the institutional level and suggest direct subsidies to them. Alternatively, he may suggest funding of a few selected students and place them in the educational institutions even at a some distance away. These decisions will of course

vary from one level of education to another. They would also have implications for upgrading of institutions and launching special courses in different local areas.

Moreover, by understanding the prevalent fiscal arrangements, a micro-planner may also be able to know the extent of resources which need to be mobilized locally to enable the inhabitants to partake in educational programmes. The micro-planner's efforts in this direction will be clearly related to the nature of the flow of funds in that particular local area. In addition to this basic arrangement the micro-planner will be required to be conversant with the different forms the public subsidy and the transfer of funds can take shape. The micro-planner should be able to suggest some norms for the allocation of resources so as to ensure the output in accordance with the different priorities. For this purpose a micro-planner will have to be familiar with the pattern of expenditure which may take place in the educational enterprise. In the following pages some salient aspects of educational expenditure analysis which may be pertinent for micro-level educational planning and management are introduced.

17.3 Educational Expenditure

To begin, it is useful to distinguish between *revenue* and *capital* expenditure. The revenue expenditure are *recurring* in nature and usually in the nature of *overheads* which are expended in *maintenance*. As compared to this, capital expenditure are meant for asset/infrastructure creation and are a type of investment. They are consequently nonrecurring. Here a micro-planner has to understand the implications of expenditure. Even a small recurring expenditure may become a permanent drain on the resources of education whereas, a huge investment in permanent infrastructure may be a source of growing wealth. The choice is in terms of the stock of wealth and flow of income. Extremely cheap infrastructures may be cheap only in terms of initial wealth and not necessarily in terms of maintenance (which is a flow).

17.3.1 Educational costs

Another way of looking at the expenditure is to classify them as fixed and variable costs. *Fixed costs* are those that have to be incurred in a lumpsum and do not change in response to small variations in the magnitude of tasks. For example the size of a class may be invariant to the number of students within a certain range. On the other hand, *variable costs* are those which vary in direct proportion to the change in the quantity of the task to be performed. For example, expenditure on provision of textbooks or of the uniform of pupils may be considered to be a variable cost in a school system. Some times these costs are also known as direct (variable or overhead) and indirect (fixed or prime costs).

In this case the micro-planner has to realize that as the size of activity grows, the per unit fixed cost keeps on diminishing. Hence the promotion or utilization of these assets/infrastructure are conducive to high productivity. On the other hand, variable costs continue to swell with the size of activity. Hence efforts must be made to minimize their magnitude per unit of activity.

17.3.2 Total, marginal and average costs

Another way of examining costs which is usually applied in the economic analysis of education is to classify these into total, average and marginal costs. *Total costs* comprise of both the fixed and the variable components described above. When these costs are divided by the number of activities or products, it yields *average cost*. As compared to this, additional cost which have to be incurred due to additional enrolment, of say one more student, is called *marginal cost*. This component is usually made up of variable cost, as the fixed cost would be invariant in such small fluctuations.

It may be noted that the issues regarding viability of schools, their minimum size, optimal size and the maximum size are discussed in the context of the above mentioned classification. A micro-level educational planner has to particularly take them into consideration as the number of pupils in any given habitat or its neighbourhood is not likely to be sufficient for optimality to be achieved in the case of each school. The problem of single-teacher school is one of the most difficult problems which arises in this context. Hence the need for taking these proportions into account while recommending the opening or upgrading of new schools.

17.3.3 Price changes

So far all the financial and expenditure data has been described in real terms. That is the change in the prices has not been taken into account. However, it is well known that with the rise in prices the purchasing power of the money keeps declining. Consequently, even if the same amount of allocation or expenditure is undertaken every year, its value keeps on eroding. Hence quite often the educational expenditure has to be converted into constant prices (i.e. prices of a given period) before any time series comparison can be done.

In educational planning, this problem is of particular concern, as wages/salaries constitute a substantial part of the total educational expenditure. These tend to be eroded if the annual increments in salary do not keep abreast of the price changes. Similarly the quality of education, as measured by the per unit cost may also tend to be depreciated unless provision is made to compensate for change in the prices.

Budgeting and Budgetary Analysis¹

18.1 The phases of budgeting

Budget is the statement of anticipated income and proposed expenditures. Its preparation follows several phases common to institutional, regional or national level. These phases are:

- Phase I: Identification of programmes/projects/activities to be accomplished in the course of the budget period.
- Phase II: Identification of resources in terms of manpower, money, equipment and materials. These are to be expressed either in such units as man/machine/hours/days/weeks/months or in terms of the actual numbers of man/machines and quantities of materials.
- Phase III: Costing of resources - The budget is fundamentally a financial statement. Hence, costing becomes the most important activity in budgeting.
- Phase IV: Presentation of the budget - The budget is formulated according to budgetary guidelines issued from time to time by the proper authority.
- Phase V: Obtaining the approval of appropriate authority - Depending on the extent of autonomy at the micro-level this stage may be relatively easy or it may be a stage when the budget is subject to further reviews, compromises and adjustments.

In the context of educational planning, therefore, budgeting is the translation of an educational plan into the common denominator - money. In micro-planning, the micro-level budget may also provide indications as to the amount of resources to be drawn from the local area, for eventual resource mobilization.

18.2 Functions of budgeting

Budgeting, as a process of relating expenditure of funds in a systematic way to achieve planned goals and objectives, has three major functions:

- a) It serves as an instrument of providing the operational cost-time framework for activities to be implemented. In this sense it is a major planning instrument.
- b) It can be an instrument for delegation of implementational authority. The budget is designed to show what particular agency, institution or group is responsible for a specific activity. So, when the budget is approved by the appropriate authority, the delegation of functions is automatically approved.
- c) It can also be an instrument of controlling and evaluating performance. The rate of expenditure in a given activity, when compared periodically with the budget provision, offers a

¹ Summary compiled on the basis of the book: *Planificación y Presupuesto por Programas*, Gonzales Martner, Siglo XXI, 10th edition 1978, 511 pp., pp.46 and 47.

simple guide to the rate of progress in that activity. If the budget is suitably designed, it will also provide data on anticipated output and costing. In such a case, there are three elements available in a ready form to serve the control and evaluation function, which are:

- rate of expenditure
- output
- cost

18.3 The budget as a planning instrument

18.3.1 Conceptual aspects

In general, sectoral plans determine the needs for resources, including financial ones, for carrying out activities or for the development of plans and projects with a view to attaining the results foreseen.

Short-term or operational plans cover a period which corresponds to that of the budget - one year or two years according to the country's system. The education sector plan gives political and technical orientation to the budget. On certain occasions, when the country or region has no short-term plan, the budget serves as a plan of operations - i.e. the budget process follows the lines of short- or medium-term educational plans. Hence there is close inter-dependence between budget and plan. The budget is an instrument of policy since it enables the educational policy expressed in the educational plan to be effected in definite form. The budget is also an administrative tool for co-ordinating, executing and controlling plans and programmes for educational development.

The budget follows quite definite planning principles which are particularly applicable at the micro-level:

Rationality: in respect of the selection of suitable alternatives for the solution of problems by the best use of resources.

Foresight: basing planning on the past, the present and projections of observed trends. Plans and programmes fix the objectives for a given lapse of time, the tasks to be carried out, the resources available and the administrative capacity.

Universality: embracing the stages of the socio-economic process and foreseeing the consequences of its application.

Unity: planning being an organic and cohesive whole. Such integration is linked with the concept of co-ordination.

Continuity: planning being a process unlimited in duration, despite variations in planning objectives, extent of activities and lapses of time fixed. This principle is linked with efficiency in the use of resources.

Inherence: planning is necessary in any organization, which must plan the means of attaining its objectives.

That these planning principles are applicable to the budgetary process is shown below:

The budget is a *rationalization* tool since it attempts to maximize the utilization of resources to attain fixed objectives.

In the budgetary process short-term forecasts are made, account being taken of what has happened in the past, of present experience and of what it is considered should be attained in the future.

The budgetary process, for the education sector, embraces all levels, types and aspects of education. Although the principle of *universality* applies above all to the public sector, on some occasions budgets may include also the private sector.

The principle of *unity*, for the budgetary process, is evidenced by the integration of different sectoral programmes and of different educational programmes.

There exists *continuity* in the process in the sense that there is no interruption between one budget and the next.

The budget is *inherent* in administration since institutions and other bodies have to plan their receipts and expenditures if they want to accomplish the tasks which fall to them.

The plan budget process is therefore simple but its overall and integrated character especially at the micro-level must be remembered for three reasons. First, because different budgetary programmes have to be drawn up with due regard to the administrative units from the base up. Second, because at each level they have to cover all of the education sector's activities. And lastly, because they are situated within the larger framework of the plan, which contains educational outlook and policy.

To sum up, preparation of a budget-programme presupposes the existence of a plan of operations (even though the budget may take the place of a plan of operations, as mentioned). Such a plan in turn presupposes the existence of a medium-term plan, which itself should be included in a long-term one.

In the case of the education sector it must be remembered that whether at the national, regional or local level the educational process takes a long time to reach maturity. Action taken at a given moment affects results which will be attained only in six, twelve or seventeen years, according to what is considered to be primary, secondary and higher education. From this point of view policy decisions included in the budget at a given time have effects which are long-term, except for short programmes such as those for apprenticeship in specific techniques, without continuing requirements.

18.3.2 Methodological aspects

While it is certain that, from the administrative point of view, results can be obtained during the course of a budget in force for one or two years, the task of working out the budget should be included in planning, so that the decisions taken may be valid for a longer term.

To show the place of the budget in relation to the planning process, while simplifying this, the following logical chain of sequences may be followed:

- i) definition of policy;
- ii) preparation of medium-term plan;
- iii) formulation of plan of operation;
- iv) construction of the budget.

Nevertheless, the impact of feedback may be noted. The budget has particular importance in the choice of options in that it enables the costs of each solution to be compared. Hence it forms part of planning.

To sum up it may be said that the budget is a planning instrument which contains policy decisions which are to be expressed in action. To be effective and to be executed at the lowest cost the budget must itself be planned. When action is planned it must be budgeted for - i.e. it must be evaluated in terms of human resources and of materials and equipment. The financial operations carried out must be shown in accounts and the data obtained used in analysis and control of the action's results.

What is obtained is evaluated systematically - that is to say that results are compared with forecasts, divergences are studied and changes or reforms are proposed for the programmes in the following period. These give rise to new policy decisions and to new plans and programmes, and so the process is repeated.

18.4 Budget designs

There are many ways of setting out a budget but two basic designs are outlined here:

18.4.1 The performance budget or programme budget

Where the budget is seen as the instrument for carrying out an educational plan (for some micro-planners this could mean the upgrading of existing primary education and the movement towards UPE; for other micro-planners it could reflect a purposeful structural change in the development of primary, post-primary, apprenticeship and adult education, etc.) and where the emphasis is on what is going to be done and on the benefits accruing to the public, such a budget is not only a statement of receipts and expenditures but includes also a brief description of what is to be achieved after each item of expenditure. It is a goal-oriented design.

18.4.2 The traditional or line-item budget

This kind of budget merely lists estimated receipts and each item to be funded. The emphasis is much more on the issue of financing than on what is to be achieved.

However, in either case the budget should provide extensive and accurate estimates of income and expenditure for the budget period.

18.4.3 Income or receipts

In most budgets at the micro-level a major item of income or receipt will be *Government Grants* which may be in two forms:

- i) *Tied Grants* which are clearly ear-marked for a specific purpose whether that be a programme or a particular type of expenditure e.g. teacher salaries, maintenance of buildings, new construction, etc. Such tied grants cannot be reallocated at the micro-level for any other purpose.
- ii) *Untied Grants* which are available for use on expenditure items determined as priorities at the particular level concerned. This is where micro-planning and budgeting find room of manoeuvre to cater to local conditions and educational needs.

In both cases funds may come from the central government via the Ministry of Education or its equivalent or from other government sectors and agencies.

At the micro-level, the budget will also include anticipated income from *local sources* - from local districts, from local and regional industries and community groups, etc. Some of such income may be known in advance and incorporated in the budget. Others may have to be found for budgeted programmes and projects not yet covered under existing resources. In many areas, the ability of the micro-level planner to mobilize such resources will be crucial in determining the extent to which local educational goals can be met.

18.4.4 Expenditure

There are essentially two types of expenditures which will occur in budgets at the micro-level:

- Recurrent expenditure; and
 - Capital or investment expenditure.
- i) *Recurrent expenditure* is usually the greatest percentage of the budget (up to 80 per cent or more) and includes such items as:
- salaries and other benefits to administrative, supervisory, teaching, special service and ancillary staff;
 - maintenance and other operating costs; travel and communications;
 - expendable items such as chalk, paper, pens, etc.

These expenditure are required on a regular and continuous basis to keep the educational process going; one might say they are being "consumed" in the process, just as the raw materials, electricity, supplies, and the time of workers are consumed in producing the respective goods or commodities in an industrial production process.

ii) *Capital or investment expenditure*

By contrast, the items below constitute *total capital expenditure*; they are investments made at irregular intervals and with a life-time of several years before they have to be renovated, or written off.

- Site and buildings (classrooms, clinics, laboratories, etc.)
- Major items of furniture and equipment including typewriters, desks, projectors, etc.

In budgeting, the amount of recurrent expenditure needed is roughly determined by the size of the system, that is, by the existing number of students and teachers. The amount of capital expenditure, on the other hand, is determined by the growth of the system, that is, by the number of additional students which enter it every year, or by the extension of facilities. Developing countries, with their rapidly expanding educational systems have, therefore, a relatively larger burden of costly capital expenditures to carry.

Within each category of expenditure there may be further sub-divisions to differentiate between levels - primary, secondary, and other - and within each of these differentiate between *on-going* and *new or special development projects* with the latter being further classified according to the nature of the new or special project itself. The aim in adopting such classification of expenditure is to provide the micro-planner with a clearer picture of the balance of resource allocation between continuing and new projects.

The micro-planner responsible for a district embracing many schools, may also wish to produce his budget in such a way as to show income and expenditure for each school or institution. In this way the integrated nature of budgeting for the region or district at the micro-level is illuminated.

18.5 Reviewing the stages in the budget process

As has been indicated the budget process is generally divided into five stages:

- a) programming;
- b) formulation;
- c) discussion and approval;
- d) implementation;
- e) evaluation.

This cycle has a normal duration of from two to three years, the execution stage coinciding with the budget year.

Before describing each of these stages it will no doubt be convenient to review briefly the principles governing the process as a whole:

- the budget should be placed in the *context of programming*, in which it is the basic tool for executing the plan;
- *universality* implies that the budget covers all of the micro-level's financial activities;
- *unity* is achieved by including all receipts and expenditures in one sole fund, avoiding funds specifically committed since these complicate accounting;
- the *specification* principle requires that the budget reflect programmes by detailing receipts and expenditures;
- *periodicity* is a principle because the usual rule is that a budget is to be presented every year. However, there are budgets which cover a longer period, especially for investments;
- *exactitude* in budget preparation, with forecasts as realistic as possible;
- as a result of the foregoing principles *clarity* is obtained when the budget includes all programmes and covers all financial aspects, when there is only one fund, when receipts and expenditures are realistic and when the utilization of resources enables objectives fixed to be attained.

18.5.1 Budget programming

At this stage the following activities may be distinguished:

Budget structuring: this is based on the operations to be performed during the budget period, the organization and functions of the administrative units concerned and the level of decentralization which it is aimed to give to the budget.

Determination of objectives for the education system, at the micro-level by level and type of education, is a function of the amount of services which it is proposed to obtain during the fiscal period.

The determination concerns also the administrative units charged with programming. Further, the number of programmes, sub-programmes and projects or activities which the budget is to cover should be fixed.

Rules laid down for the budget process are also important for this stage. Generally there are rules made by the bodies responsible for the national budget and these are relayed to the micro-level by the

appropriate central authority. Nevertheless, in most cases specific procedures are devised for each specific unit at the micro-level and each unit puts forward its work plan in conformity with such directives.

These may contain guidance on priorities, organization or methods. Further guidance may concern educational policies, amounts of receipts and expenditures, the time-tables for formulation and presentation of drafts or projects, and the discussion and approval procedure. It may be also that the budget terminology will be given in more or less detail in chapters, articles, paragraphs and lines, as well as how forms are to be used.

Whatever may be the design of the budget preparation cycle, during the last part of the execution of the current budget, it is necessary to fix the *level of financial commitments*. Generally, the funds committed (FC) are determined from the amount of the approved budget (AB), with the addition or subtraction of modifications authorized or foreseen (MA), and finally with the addition of the adjustment authorized (AA) for the period of the new budget. The formula would be: $FC = AB + MA + AA$.

Funds committed may have been shown by programming level so that a starting point is given for establishing the minimum amount of resources needed. In other words, the sums committed in the budget cannot be less than the corresponding estimates of expenditures incurred.

18.5.2 Budget formulation

Two phases may be distinguished in budget formulation: preparation of the budget draft and then of the final proposal. Formulation is based on data obtained during the budget programming stage. During formulation the administrative units prepare their workplans and participate in a series of consultations leading to increases or decreases.

In the draft are usually included the estimated receipts and expenditures of each administrative unit so that the programmes and sub-programmes may be arranged. The drafts are presented to the micro-planner for evaluation. After this the budget proposals are drawn up with regard to the various levels of funding commitments.

At the same time, estimates of receipts and formulation of reasons justifying the amounts of expenditures are being refined. The micro-planner prepares the budget proposal after assessing its coherence, and then establishes the balance needed between receipts and expenditures. The budget proposal is then transmitted to the central authority at the Ministry of Education for further discussion and approval.

18.5.3 Budget discussion and approval

Whilst ultimate approval may reside with the central government the process for discussion and approval at the micro-level ensures that appropriate priorities are set and that in turn will assist in ensuring that goals are achieved.

18.5.4 Implementation

As soon as all approvals and allocations have been received from the central authority the micro-planner can distribute the funds at his disposal in accordance with the budget structure adopted during the budget programming and formulation stages.

Execution presupposes a cluster of financial operations. At this stage budgetary modifications may take place, such as transfer of credits and budget increases or cuts. Accounting procedures are established with a view to recording all financial movements in the budget's execution. This accounting is used to ensure regularity in the use of the funds and to evaluate the results of administrative actions. To examine and review budget operations there are two types of control, one before and the other (the audit) after expenditures are made.

18.5.5 Evaluation

Execution of the budget should be evaluated periodically to ascertain its progress and how resources committed for the provision of goods and services have been used.

The evaluation will involve all aspects, financial and material, of the results obtained. It makes it possible to obtain the information needed for any corrections to be made to secure proper execution of the budget/programme. Certain problems may restrict the task of evaluation: in some cases there may be gaps or contradictions on the part of the administrative units, in others specific objectives may not have been pursued and control action is defective, so that it is not able to lay down the corrective measures needed.

Resource Mobilization

19.1 Micro-level resource mobilization

Resource mobilization is perhaps one of the most important tasks of a micro-planner. Traditionally, educational administrators find themselves in a passive position, relying mainly on resources that have been determined by higher levels and assigned to them. This is typically the case of budget allocations from the central and intermediate superior levels. A major requirement of MLPM is for the micro-planner to take up an active role in the determination of resources requirements and subsequent actions in mobilizing and acquiring these resources.

Experience in most countries has substantiated the fact that the level of government budgetary resources for education cannot keep pace with the expansion in demand for education, partly because of demographic factors and partly due to social preference function for education. Education is being viewed as a fundamental right of individuals and as a means for social mobility and improvement in quality of life. On the other hand, there has been competing demand on government budgetary resources from other economic sectors to which high priority has been accorded since these are vital in providing direct impetus to the development process, at least in the short run. Gestation period in education is relatively longer, although its importance as an investment in human capital with high potential to yield economic returns is increasingly recognized.

The task of the micro-planner therefore comprises securing local resources complementary to the government budget commensurate with the magnitude of the programme to be implemented at the micro-level under his charge, to ensure programme implementation with maximum effectiveness. In this context, the term "resources" is inclusive of all financial, material, manpower and technological resources.

19.2 Budgeting

As has been discussed in the previous Chapter, the micro-planner ought to sharpen his tools in costing methods and budgeting techniques to present the relationship, in clear terms, between the amount of financial resources required and the magnitude of the programme. He should make every effort to correct the traditional practice of linear, incremental increase in budgetary allocations, with the previous year as a base line. Rather he should be able to *present different variants of the budget based on distinct "levels of programme activities" as a basis for allocation.*

19.3 Allocation criteria

The micro-planner ought to be fully aware of the implications of various criteria for budgetary allocations. He should be prepared to adopt appropriate criterion in the light of the priority needs identified under each educational programme. For example, "equity" may be an important criterion in allocation. If so, the programme for the promotion of access of girls and women to education, extension of educational opportunities in rural areas or to disadvantaged groups of the population should be accorded the priority that it deserves. It is through the ability to apply pertinent allocation criterion or criteria in the light of priority programmes that the micro-planner will be able to "mobilize" the financial resources from government and non-government sources for programme implementation.

19.4 Resource gaps

In spite of every effort made by the micro-level planner to secure commensurate amount of financial resources from the government budgetary sources, it is likely that there will remain gap between the amount of financial resources required and the amount of resources available. Indeed these gaps call for the imagination and initiative of the micro-level educational planner to explore all possible avenues and mobilize the maximum amount of available resources required for programme implementation.

19.5 Potential sources of local support to education

The micro-planner must keep in view the following as the potential sources of local support to education:

19.5.1 Individuals

In many countries, the establishment of local schools has, to a large extent, been the result of initiatives on the part of wealthy community members who contributed money, land or buildings. This often paves the way for a wider basis of community support, by motivating other community members to put in contributions in cash and in kind, and often enough, in labour for the preparation of school building sites, construction work, maintenance, and management.

The tradition of individual assistance to education has persisted to this day in spite of the active role of government in the provision of education. Individuals in their personal capacities continue to be the chief benefactors of education.

Three categories of such individuals may be identified. Firstly, there are the rich philanthropists who make large-scale donation of cash, land, buildings and equipment, so much so that the school facilities are owed to them and sometimes named after them. Secondly, there are middle class parents who contribute money or materials on a modest scale, but of which the total can be quite considerable. Thirdly, there are those who do not have money or materials to give but who come forward voluntarily and contribute with their labour and toil. In many cases, such labour serves a very real need and is an effective supplement to other forms of contribution.

19.3.2 Personnel of government departments or service agencies operating in the local area

The micro-planner may attempt the mobilization of manpower resources notably from government departments or service agencies operating at the local level. Typical examples are the personnel of the departments of health, agriculture, co-operatives, small industries and rural development programmes. They often extend their services to education beyond any duty requirement. Local officials have sometimes taken on a teaching role. In so far as non-formal education is concerned, most personnel of local government departments and service agencies play a significant role in promoting related activities and in rendering assistance according to their own fields of competence.

19.3.3 Voluntary groups specifically organized for educational purposes

There are several voluntary organization which are specifically committed to the development of education e.g., parent-teacher associations, school improvement committees, school welfare boards, and school councils. The most common of these are the parent-teacher associations. There are other bodies

which exist under different names in different local areas. Parent-teacher associations as well as these other bodies may operate informally under the rules made by themselves, or by an authority such as the Ministry of Education. They are powerful sources of support to individual educational institutions.

The existence of alumni associations has also an immediate effect on resource mobilization. Although they are not organized strictly for educational purposes, they are often instrumental in generating moral and material support to the development of educational institutions.

19.3.4 Voluntary groups not specifically organized for educational purposes

Some of these groups are highly organized structurally and functionally, and are part of an international network. Typical examples are the Rotary Club, Lion's Club, and Junior Chambers of Commerce. All these groups have been known to extend their support to education, either by making contributions in cash or kind, or by participating in servicing projects.

19.3.5 Business firms, industrial enterprises, and trade organizations

In many countries, it is the practice of many business firms, industrial enterprises and trade organizations to make donations out of their profits to educational programmes or institutions. Governments also encourage such contributions by allowing donor corporations certain tax exemptions under the tax laws. It is the role of the micro-level educational planner to be knowledgeable about these provisions and to maintain constant contact with these enterprises and organizations. He should keep them informed of local needs for educational opportunities and priority projects for educational development in the local area.

19.3.6 Local government bodies

Local government departments and agencies extend their support to education, usually in accordance with statutory responsibilities placed upon them. Under the education sector at the local level, there are a number of educational and training activities that are related to the areas of government departments and agencies in other sectors, such as in health care and various skill training in agriculture and industrial production. It is essential that appropriate amount of government resources in the corresponding sectors be secured as supplement to the local education department's own funding support.

Other local government bodies may play an important role in legislation, administrative provisions and regulations in requiring and promoting community involvement in education.

19.3.7 Religious bodies

Another source of support to education may be found in the religious organizations. In many countries, the places of religious worship have been the first educational institutions. Later, formal schools were established in the environs of such places. They exist today and monks, clergymen and religious leaders are often seen in the role of teachers. Associations formed by persons belonging to various religious groups also extend their patronage to education by establishing schools, making contributions in cash or in kind, offering scholarships, and in numerous other ways.

19.4 Kinds of local resources contributions

Three main kinds of contributions, namely contributions of a "capital investment" nature, of a "recurrent" nature, as well as of a "service" nature may be identified.

- a) *Contributions of a capital investment nature* include:
 - donations of land, buildings and playgrounds;
 - donations in cash or materials for the construction and extension of educational facilities, including teachers' quarters and toilets;
 - donations in cash or equipment (laboratory, musical, sports), furniture, library books, teaching aids, and first aid kits.
- b) *Contributions of a recurrent nature* encompass:
 - full or partial remuneration of teaching and/or supporting staff;
 - donations of stationery or cash for its purchase;
 - donations to meet costs of maintenance and operating costs (electricity, water supply);
 - provision of scholarships;
 - donations for science clubs and other co-curricular activities;
 - donations for sports meets, prize distributions, exhibitions;
 - donations of books and uniforms for needy children;
 - donations in cash or kind for the supply of school meals; and
 - cash contributions or provision of board and lodging to teachers of literacy programmes.
- c) *Contributions of a service nature* may include:
 - labour contributed in connection with building construction, extensions and repairs;
 - service, usually by local government personnel in connection with health (medical inspections, immunizations), and agricultural activities;
 - teaching in educational institutions (or in non-formal education programmes) in the fields of health, handicrafts, physical education;
 - teaching in literacy classes;
 - teaching in apprenticeship programmes;
 - teaching of weak pupils outside the school hours by teachers, or by retired teachers;
 - provision of in-plant training and work experience; and
 - assistance in the organization of religious, sports, and cultural activities.

In the light of the potentials of the community to contribute to education, it need not be emphasized that the mobilization of resources for the development of education has considerable implications for planning and management particularly at the micro level.

19.5 Implications for planning and management

19.5.1

The motivation of the community to support education and the possibility of mobilization of community resources seem to be dependent on two major factors. One of the factors is the closeness of the linkage between educational institutions and the community, and the other factor is the personal qualities of the local educational functionaries and heads of educational institutions. A favourable linkage is featured by the existence of a viable relationship, formal and informal, between the educational functionaries and representative groups of parents and community members. The micro-planner should be aware that this kind of linkage is needed to facilitate the mobilization of resources to serve the ends of educational development at the local level.

19.5.2 Complementarity

The micro-planner must find a way in which community support for education could be co-ordinated with the inputs from the government. In other words, the co-ordination of community support and government inputs should be reflected in the plans, programmes and projects for the development of education on a district or sub-district basis, or on institutional basis.

Two possibilities are seen to be open in this regard. The first is when there is legislative provisions or administrative regulations specifying the nature and magnitude of the support required from the community for education. In this case, there is no difficulty in co-ordinating community support and government support as the contribution of each is known. There is also no great difficulty in taking into account both forms of support and preparing a development plan or programme.

The second possibility is to focus community support on a special project or projects. The advantage of identifying one or more projects is that the means of achieving the objectives of each project could be carefully considered, and the relative contributions from the community and the government could be taken into account. If this approach is taken, co-ordination through interface between full programme development and specifically identified projects would go hand in hand. Considerable skill would be required from the micro-planner to achieve such co-ordination, but the skill should lie more in the capacity of enlisting the thinking potential or ideas of those concerned about the programme and projects rather than a single-handed effort on the part of the micro-planner.

19.5.3 Delegation of authority

There is the question of delegation of authority. Experience has shown that wherever control of educational institutions has been transferred to local bodies, there tends to be some difficulties in the proper exercise or use of power. Notwithstanding these problems and difficulties, there is a clear indication that delegation of authority to local levels is the direction in which educational planning and management is moving in its search for greater operational efficiency and effectiveness. Ideally, delegation should be accompanied by an educational programme or project for those entrusted with the new power and authority, and for the implementation of which they should be fully accountable. At the same time, the community should be educated to exercise vigilance so that public opinion or accountability would serve as a check on the use of financial or material resources to ensure that it is strictly in consonance with the objectives for which these resources have been mobilized.

Community Support and Participation

Earlier it has been mentioned that co-operative management is one of the preferred ways for the management of educational systems at the micro level. This part deals with community participation in the context of micro-level educational planning and management and is divided into three chapters.

Chapter 20 deals with the community's support to and involvement in educational management at the micro level. Apart from describing its importance and providing its rationale, it explains the process of community participation in micro-planning. It also examines some of the issues related to the optimal mobilization and management of community inputs.

As a sequel, Chapter 21 tackles the theme of establishing trust and building cooperative relationship in the micro area. It mentions the role expectations that a micro-planner and the community may have of each other. It also discusses the question of viability of collaborative management in the context of MLPM.

The last chapter in this part: Chapter 22, deals specifically with parental support in micro-planning. It explains their role and the possible areas in which they may be able to make contributions. In particular, it highlights the role which parents can play in ensuring better educational achievements for their children.

Promotion of Community Involvement

20.1 The local community

A community is a group of people who have common interests and work together for a common goal. Often a village is referred to as a community and in a wider sense it is so, for it represents a group of people living together in a defined area. For individual schools, there are the school communities which consist of parents and families of pupils and all those persons associated with the particular school.

But persons just living closeby in a neighbourhood do not become a viable community unless they are organized. Without organization it is simply a collection of individuals and cannot function as a unity. In order to function as a viable community, a village level association has to be formed, consisting of a group of persons who can work together and take decisions on behalf of the villagers. MLPM to a large extent relies on involving such community associations in the development of education in and for the local area.

20.2 The importance of community involvement

During the past twenty to thirty years, self-help grassroots movements have sprung up, pioneering the community-centred approach to development in agriculture, health, education, family planning and income-generating schemes. Today many examples of such programmes are to be found in various countries. Their potential for self-help in order to cut costs and to involve the people to help themselves, is leading to a gradual re-examination of the assumptions and priorities of planning. There is a shift from the top-down approach to an emphasis on what communities can contribute, and to an integrated approach with due stress on what is possible and appropriate for them.

This movement is increasingly evident in the education sector. To fully utilize the community development approach for education, micro-level educational planners need to acquire new approaches, new skills, to adapt, to decentralize and to be willing to shift some of the tasks to those in the local community. Community participation implies a high degree of involvement of regional and local forces in the educational process, by principally dealing with the reinforcement of the role of the public, represented by parents, community members, community bodies and institutions which work on a volunteer basis.

20.3 Rationale for community involvement in education

The reasons for promoting community involvement in education are as follows :

- a) Governments are finding it increasingly difficult to meet the expenditure required for education in the face of the increase in educational needs arising partly from rapid population growth, and partly from the growing social demand for education. Local support for education is seen as a means of supplementing whatever resources the government is not in a position to devote to education.
- b) Local support is perceived as a means of making the local community take an interest in education. It is felt that some of the apathy shown by many communities towards education can be eliminated if the community is required to support the provision of education.

- c) Local support is regarded as a means of ensuring that the school is sensitive to the needs of the community. In its present form, the school curriculum often does not focus sufficiently on local needs, and to a certain extent even alienates students from life in for example the rural community. If the school has to look to the community for support, it may generate demands from the community that schools should develop curricula which take into account its needs and problems, without affecting adversely overall academic standards that hold the key to mobility.

20.4 The processes involved in generating community participation

Generating and sustaining community participation helps the local people to be involved in the development of education in their own community. A vital element to promote community involvement and participation is to develop a culture of openness; a negotiating culture in which problems can be openly discussed and differences can be resolved. Such an openness promotes viewing of the issues in a more objective manner. Besides, the process builds mutuality amongst people.

Community participation entails at least three inter-related processes:

- i. Involvement of the people in the decision-making;
- ii. Contribution in cash, kind or service to the development of education at the local level; and
- iii. Sharing in the benefits derived from the development of education.

20.5 Community involvement and the change process

Community participation and involvement in education, however, cannot be built in a short time. It warrants changes in people's attitude. Having been accustomed to government support for education, they may not be forthcoming to help themselves. In initiating such a movement, a micro-planner may have to make a slow but well-planned start. Some of the helpful steps are listed below

- i. *Awareness* - Change in behaviour often begins with an awareness about the need and direction of such a change. Participation would become meaningful, if people are clear about the purpose and nature of their participation. The micro-planner will have to resort to all channels of communication to build up people's awareness.
- ii. *Interest* - Interest is generated when awareness is supported by opportunities to pursue the matter further. It is therefore, important that the community be given identifiable tasks that can be acted upon for the local good.
- iii. *Try out* - Interest needs to be channelled into action. Once focus is provided for community participation, people need to be able to participate in undertaking trial projects. Such efforts usually have a high degree of success in providing learning opportunities to community and they are useful for their subsequent efforts in improving education.

This attitudinal change is evident in certain countries where community participation in the development of education has attained a high degree of success. One case in point is Chinese education at the village level. As a result of increased prosperity due to the introduction of the "responsibility system", substantial financial contribution to the village's educational development has been a common practice. The community also provides for construction and maintenance of school buildings and equipment for

primary schools. Local population provides labour in income-generating activities like in the sapling nursery which they set up and the profits from this project are used to support educational activities.

Similarly, in Bangladesh, less than 5 per cent of the primary schools have been set up by direct government initiative. All the rest were established by local bodies such as municipalities, or by groups of people who, perceiving the need of their community, got together and set up a primary school. The community contributed towards land, construction and maintenance of school buildings, equipment and furniture. In backward areas of certain states, where the community was too poor to provide funds for construction of school buildings, it came forward to provide "Shramdan" (labour). In some places local craftsmen were involved in giving instruction to pupils in skill development for work-experience oriented subjects. In some other places, educated parents had helped in enriching the classroom instructions.

20.6 Questions to guide the planning and management of community efforts

Since community participation is to be directed towards educational development, the planning and management of community efforts may be guided by the following questions:

- a) What educational purposes are to be served through community participation?
- b) What programmes and activities are to be organized to stimulate, co-ordinate and sustain community participation?
- c) How are these programmes or activities to be organized?
- d) How are the outcomes of community participation to be evaluated?

The educational purposes that local community participation can best serve are not only those associated with the provision of physical facilities, equipment and teaching materials, but also there are those that make the school curriculum and the teaching-learning process meaningful and relevant to local needs.

Once the educational purposes are determined, programmes and activities are best derived through joint consultation between the educational institution and relevant individuals in the community. These activities are to be carried out through participative management of programmes and activities.

The monitoring and evaluation of community participation as a collaborative effort between the educational agencies and community representatives is a necessary activity for further feedback and improvement. Without consciously providing the monitoring and evaluation activities, programmes have the habit of fading away.

The path of community participation is not an easy one. Communities even within a local area, vary in their social, economic and cultural set up which may impede or facilitate interventions for improvement. As such, no single set of techniques are applicable to all communities. However, people do respond to sincere approaches. The critical factor is generating people's interest in providing for themselves out of their own initiatives and resources towards greater productivity in the near future. Implicit in this process is the assumption that having been helped to solve one problem those involved will be sufficiently motivated and will have acquired sufficient skills to tackle other problems.

20.7 Management considerations and the mobilization of community support

It is recognized that promoting community involvement for education has considerable implications for educational management. These can be categorized under:

20.7.1 Motivation and mobilization

Motivation of the community to support schools and the mobilization of such support are seen to be dependent on two major factors. The first is the closeness of the linkage between the schools and the community, and the second is the personality of the head of the school. The closeness of the linkage between the school and the community is seen to be partly a function of organizational features, and partly a function of the leadership qualities of the head of the school. The relevant organizational feature is the existence of a viable relationship, formal and informal, between the school authorities and a representative group of parents and community members where such a relationship exists. Where the community has opportunities of expressing its views regarding the developmental needs of a school, a community commitment to supportive action is created. This kind of linkage between the school and the community facilitates the mobilization of resources needed by the school. In the absence of such a linkage, the personality of the head of the school becomes all important.

20.7.2 Co-ordination and planning

Two major points that arise in this regard are:

- i. The way in which community support for education could be co-ordinated with the input from government;
- ii. The way in which the co-ordination of community support and government inputs could be reflected in the general plans for the development on a district or an institutional basis.

Two possibilities are seen to be open in this regard. The first is when there is legislative provision or an administrative regulation specifying the nature and magnitude of the support required from the community and education. In this case, there is no difficulty in co-ordinating community support and government support as the contribution of each is known. There is also no great difficulty in taking into account both forms of support and preparing a development plan.

The second possibility is to focus community support on a special project or projects. The advantage of identifying one or more projects is that the means of achieving the objectives of each project could be carefully considered, and the relative contributions from the community and the government could be taken into account. Of course, it is envisaged that what inputs the community could make without hardship should be harnessed to the full, and that inputs from the government should be sought only to the extent that they are indispensable. If the project approach is used, co-ordination and planning could go hand in hand. Considerable skill would be required from the micro-level educational manager to achieve this, but the skill should be more in the capacity to enlist the thinking potential of those concerned about the school rather than a single-handed effort on the part of the manager.

20.7.3 Delegation of authority

Delegation of authority is an important element in micro-level planning and management. It generates initiatives and promotes entrepreneurship among the educational administrators and members

of the community. However, a suitable environment capable of self-responsibility and self-regulation has to be built for delegation to thrive in the positive direction. This needs to be monitored and nurtured to a sustained growth. Otherwise it can degenerate. Experience in some countries has pointed to some problems in this regard.

Experiences in India for example have substantiated the difficulties that arise when government lets loose its reins too quickly. It points out that wherever the control of elementary schools has been transferred to local bodies, the latter have not always been beyond resorting to exploitation of the teachers. Abuses in the private management of schools have also been noticed occasionally. In some cases the private management expects teachers to collect funds from the community and those who are not able to do so are called upon to pay out of their pockets!

Notwithstanding the problems and abuses, there is no doubt that delegation to the local level should be the direction in which the management of education should move at the micro-level. The fact that all is not plain sailing shows that delegation should be accompanied by an educational programme for those entrusted with the new power and authority, so that they would appreciate the limits within which such power and authority should be exercised. At the same time, the community should be educated to exercise vigilance so that public opinion would serve as a check on any attempt to abuse delegated authority.

20.7.4 Standard and supervision

The maintenance of standards in such things as buildings and furnitures becomes a problem when local support is mobilized, unless the problem is anticipated and suitable guidelines are laid down. The responsibility for this should be with national, provincial education authorities rather than with an individual principal/headmaster, as it might be quite embarrassing for him to lay down standards. Micro-planner must obtain such guidelines either from his superior levels or from other regions in the neighbourhood. The standards selected by him should be reasonable and within the reach of the community and if necessary, readily lend themselves to local adjustments using available materials and adapting to prevailing conditions.

20.7.5 Administration

In Myanmar, the Executive Committee of the parent-teacher association is responsible for the proper accounting and administration of school finance including locally procured donations. In some parts of India, the responsibility rests with the parent-teacher associations and with ad hoc committees composed of influential people in the community. The experiences of India emphasizes the importance of ensuring that proper records of money and materials received are maintained, and that there should be a display of the latter so that the community would become aware of what has been donated. In Nepal, local fund collected for a school are first transferred to the District Education Committee, which later releases them to the school management committees for expenditure in accordance with approved plans.

Establishing Trust and Building Co-operative Relationships

21.1 Factors affecting community acceptance

The micro-level educational planner and manager must earn the respect and trust of his community to be able to function effectively. While doing his best to gain the confidence of superiors at the meso and macro-level, colleagues at the micro-level, and subordinates at the local or institutional level, the micro-planner should aim at establishing a good relationship with the constituent social groups in his region. This is most crucial for community and people's participation to succeed.

This mutual relationship depends upon several factors. Some of these are discussed below in detail.

- a) Role expectations
- b) People's confidence in the professional competence of the micro-level planner and manager
- c) People's confidence in the personal qualities and integrity of the micro-level planner and manager
- d) The micro-level planner and manager's exercise of power and influence
- e) People's satisfaction with the operation in the area for which the micro-level planner and manager is responsible

21.2 Role expectations

It is essential that the micro-planner is clear about the expectations the community people have of the roles and responsibilities associated with his position. The higher the degree to which the micro-planner and members of the constituents share similar role expectations and the more the micro-planner is satisfied in his role, the more effective are the relationships likely to be.

21.3 Professional competence

People's confidence in the professional competence of the micro-planner is based on his competence in the major areas of responsibility associated with his role. These will include:

i) Competence as a resource manager

People are confident:

- that the micro-planner is able to manage resource inputs for education; and
- that the micro-planner knows where to get additional resources.

ii) Competence as a manager of staff

People are confident:

- that the micro-planner is able to exercise influence over staff;

- that the micro-planner is fair and objective in dealing with issues where there may be a conflict of interests or expectations between members of the community and staff;
- that the micro-planner is fully aware of what his staff are doing in the local area and in the schools.

iii) *Competence as an educational leader*

People are confident:

- that the educational programme is appropriate and meets local needs regarding academic achievement, vocational preparation, and social development;
- that all members of the school system are working towards common education objectives;
- that the micro-planner is abreast with current movements in educational thought and practice.

iv) *Competence in liaison with the education department/ministry and other sectors*

Members of the community are confident:

- that the micro-planner can manipulate the system to get the best teachers, funds, and other resource support;
- that the micro-planner maintains an efficient system of communication between the education department/Ministry and the school locality.
- that the micro-planner can readily obtain the co-operation of local departments from other sectors.

v) *Competence in public relations*

Members of the community are confident that the micro-planner can:

- relate to a wide range of people; and
- communicate effectively.

21.4 Personal quality and integrity

In addition to his professional competence people will also base the nature of their relationship with the micro-planner on their judgement of his personal integrity. This will include assessments of his:

- Decisiveness
- Dedication
- Ability to give a sense of purpose and direction
- Preparedness to be honest and frank
- Ability to make people feel that they are valued and that they are doing an important job
- Preparedness to enable people feel they can speak freely.

21.5 Viability of operation

Finally, the relationship between the micro-planner and members of his constituent groups will be influenced by people's perception of the viability and success of the area of operations for which he is responsible. The effective micro-planner will not only be sensitive to his own performance but to those in his entire functioning unit.

21.6 Developing collaboration

The micro-planner must at all times be most sensitive to the approach taken to decision making. A successful decision is one which will be acted on and carried out in an atmosphere of harmony and co-operation. On many occasions, the way we make decisions causes more conflict than the decisions themselves. Every effort should be made to avoid making decisions which cause ill-will and frustration.¹ It is the achievement of consensus which should be the aim of micro-planner. In other words, the decisions should be agreed upon by the whole group, and not just a majority. They should be also supported by the whole group. It is a process which requires participation by all, negotiation, and time.

21.7.1 Benefits of working in a collaborative way

There are many benefits of working in a collaborative way:

- It is a safeguard against decisions being made by the few who may not represent or understand the interests of the many.
- It is a safeguard against prejudice and inaccuracy.
- While people are working together to achieve consensus, understanding grows on everyone's part because different perspectives on an issue are aired.
- Much personal development occurs in knowledge, insights and skills.
- People are able to air their feelings in a constructive way.
- The breadth of experience and enthusiasm of a wide range of people is not lost.

21.7.2 Values underlying the collaborative approach

Underlying a collaborative approach are certain valued behaviour and attitudes. These are:

- Honesty
- Openness
- A high degree of consultation with those affected by decisions
- A high degree of communication and information sharing
- Willingness to confront issues
- Mutual trust, respect and support
- Maximum participation by everyone
- Use of consensus wherever possible, as opposed to majority vote

21.7.3 Roles and responsibilities in collaborative settings

In a collaborative situation such as in a group consultation, all members of the group have certain responsibilities to:

- maintain those prerequisites of collaboration
- carry out agreed tasks, be prepared, make use of information given
- look for alternatives for action with the interaction of the group rather than present prepared recommendations for endorsement

1 Wiehenson Cheryl. *Collaborative Decision-making*. Victorian Council of School Organizations, Victoria, Australia.

- relate to and represent the group who elected them
- in-service guiding and training of new members
- give encouragement to others
- keep some order, keep to relevant points and the agreed agenda
- be as clear as possible
- participate
- avoid interrupting or indulging in private conversation
- listen
- take responsibility for decisions

The leadership role is very much one of being a facilitator. The chairperson of the consultation should see to that the aims are worked towards and the tasks are completed. He should insure that the situation is created where all can contribute in a way that is respected by all. He should be sensitive to the balance between working effectively through the agenda while allowing personal development and good relations among people to be fostered.

As well as a chairperson, a collaborative decision-making group should also have an executive officer who would service the needs of the committee in terms of communication, record keeping and information.

Mobilization of Parental Support

22.1 Parental roles

An area in which MLPM can intervene effectively is the promotion of parent support to education, especially in the very important role that parents can play in facilitating children's learning. A child's earliest educators are the child's parents. Because of the fundamental importance of a child's early learning experiences for all future learning the responsibility vested upon the parents is of the utmost significance.

Conditions in the home environment, and more particularly the social interactions between parents and children, go a long way towards facilitating or inhibiting children's chances of success in school. In as much as the central purpose of education is to ensure that children adjust satisfactorily to learning situations and acquire the competencies and attitudes that are sought to be developed, it is important to identify the factors in the home environment that are conducive to children's success in school, and launch programmes of parent education to bring such factors to their attention, and make them active partners in the educational enterprise. Rural parents even more than urban parents need to be approached in this regard as the chances of them being acquainted with this knowledge are remote. The orientation of parents to appreciate these issues and respond to them positively requires a well-designed effort that lends itself well to micro-level educational planning and management.

22.2 Features of the home environment which are relevant to children's achievement

It is important for the micro-level educational planners and managers to note that there are features of the home environment which are relevant to **children's achievement**¹.

These features are:

- a) Academic guidance and support - the availability and quality of the help and encouragement parents give the child for his or her school work and the conditions they provide to support the child's school work.
- b) Stimulation in the home - the opportunity provided by home to explore ideas, events and the larger environment.
- c) Language development opportunities in the home for the development of correct and effective language usage.
- d) Academic aspirations and expectations - the parents' aspirations for the child, the standard they set for the child's school achievement, and their interest in the knowledge of the child's school experiences.
- e) Parents' influence in shaping the child's positive attitude towards learning.

1 See Bloom, Benjamin S.: *All Our Children Learning - A Premier for Parents, Teachers and Other Educators*. McGraw Hill. 1982.

22.3 The importance of parental education

While parents are generally concerned with their children's educational progress, it is not to be taken as reflecting all parents' attitudes especially those of the low income groups, or in weaker, or deprived communities where the struggle for survival is a daily reality. The high rate of non-enrolment, frequent absenteeism and high drop-out rate are symbolic of a lack of parental involvement when it is most needed to achieve universal primary education. The need for child labour to supplement the family's meagre income is a stark reality and is a constant hindrance to universalization of education. At the same time the irrelevance of the curriculum of formal education as viewed by some parents in the light of their value orientations and day-to-day survival has also discouraged parents for pursuing education for their children. For these situations, parental education becomes a vital prerequisite to the child's education. The micro-level educational planner and manager need, therefore, to make parental education an integral part of their daily contact with the community and in programmes in literacy campaigns and adult education.

Unless parents begin to take an active interest in their children's education the quality of education cannot be improved. Parents' involvement means more than their contribution in cash and kind to the school system. It is the quality of parent-child and parent-school interactions in matters related to the child's immediate educational progress and educational future which are more significant and essential.

22.4 Ways of Involving Parents in the Education of their Children

Parental involvement can be seen as a continuum ranging from the traditional formal relationship between parents and schools to the current moves for parental participation in decision making bodies which determine crucial aspects of education such as policy and curriculum. At one end of the continuum parents enter the school by invitation only and at the other they have the right to be considered as partners in the joint effort of providing for their children's education.² Along the continuum parents can be involved in a range of significant ways.

PARENTAL INVOLVEMENT PARENT INVOLVEMENT BY INVITATION

Social occasions	Plays Excursions Concerts
Educational occasions	Parent-teacher meetings Opendays
Parents as advisors or providers of services	Mothers Club School Committees Parents and Friends Committees
Teacher aids	Making aids Helping on excursions

2 Anne Henduson, Carl Marburger, Theodora Ooms: *Beyond the Bahe Sale*. National Commission for Citizens in Education. Columbia, 1986

Mobilization of Parental Support

Parent-Teacher Collaboration

Working together on joint projects
Planning and developing new courses

PARENTAL INVOLVEMENT AS RIGHT

School Councils/Boards
School Management Committees
Local Education Committees

Parents, Principal, teachers together share the responsibility for decision-making in regard to curriculum, policy, school organization. Parents have a role in the selection of staff.

22.5 Ways in which educators alienate parent

In the past professional educators have not been sufficiently forthcoming in involving parents in the education of their children. By way of an example, some of the responses which professional educators often give to parents are listed below. Although professional educators do so with the intention of avoiding the issue but they end up alienating the parents. The micro-planner must make those educators with whom he works, aware of these pitfalls which inhibit parental involvement.

Negative Responses of the professional educators include:

- (a) Professional Domination - "We are the experts" - Educators know best and must make the decisions.
- (b) Denying the Problem - "That is not a real problem - where is the proof?"
- (c) Arguing that it is an Exception - "It's an exception" - it may be happening in a few instances but it is not widespread.
- (d) Blaming the Victim - "With this type of student at this type of school, not much can be done".
- (e) Blaming Other Parents - "Those parents do not seem to care about their children - We can't do anything without support".
- (f) Delaying - "We know the problem exists but we need time".
- (g) Abdicating Responsibility - "I know it is a responsibility but my hands are tied".

22.6 Basic Principles of an Effective Parent- School Partnership

The micro-planner must ensure that certain principles basic to effective parent-school partnership are respected in the schools in his locality. Listed below are some of these principles and examples of specific actions which reveal that these principles are respected³:

1. The climate of the local education office and each school is open, helpful and friendly.
Examples: (a) A sign indicating "Parents are Welcome" is displayed on the front of the building; (b) An informal parent-educator gathering is held every 1-3 months.

3 Lay Ochiltree: *Changing Families, Changing Schools: Parental Involvement in Schools*. Institute of Family Studies, Melbourne, Australia 1984

2. Communications with parents are regular, clear and two way. Examples: (a) Teachers visit the homes of children in their class; (b) An open-house is regularly held for parents to learn about the school and school programmes.
3. Parents are treated as collaborators in the education of their children, with a strong complementary role to play in their children's development and learning. Examples: (a) The school communicates with parents as soon as a child begins to experience difficulties; (b) Parents may be invited to come to school to help in activities.
4. Parents are encouraged, formally and informally, to comment on school policies and issues and share in decision making. Examples: (a) A school or local education council or board is established and meets frequently; (b) Administrator uses many media to communicate to parents not only on their children's progress but also on educational issues.
5. The school accepts its responsibility to forge a partnership with all parents and not simply those that are readily available and willing. Examples: (a) The principal makes a point of personally inviting parents not normally involved in the school to school activities; (b) Meetings are held at times when all parents are free to attend.

22.7 Reasons why parents do not always exercise the power at their disposal

In many instances, parents have not used the power at their disposal, either individually or collectively. Traditionally, this has largely been as a result of the lack of official recognition of the role parents can play in education. Other factors however continue to play a part. These include factors about which the micro-planner can effect change, for example:

- (a) lack of information.
- (b) lack of communication
- (c) lack of co-operative organizational effort and factors upon which parents themselves must act
- (d) lack of direction
- (e) lack of persistence
- (f) inability to identify problems and set priorities
- (g) inability to work with the broad range of parents whose experience, status, and skills may be on a different level

In the first instance, the micro-planner who has a commitment to facilitating greater parental involvement must insure that the communication channels with parents are open and conducive to free information transmission. He must also ensure that organizational arrangements are in place to provide proper avenues for participation. Initially, of course, parents may not be willing to avail themselves of these opportunities. In this context the micro-planner must assume an educative role vis-a-vis parents, encouraging them and educating them as to the ways in which they can exercise the power available to them. In time, parents must assume responsibility for their own organization and contribution. At this point, they will truly be ready to serve as partners in the educative process.

22.8 Steps in organizing parents for action

Action that improves the quality of education that is provided for their children should be the goal of any parents group. Steps that can be followed if parent action is to be effective well include:

Step 1. Problem identification.

Parents should be given the opportunity to identify their problems or concerns. This can be done in group situations or by a household survey. Because any parent group cannot solve all problems, an agreement will, however need to be made to set priorities and concentrate efforts. The issue which is chosen for concentrated effort should:

- (a) be urgent;
- (b) be a problem that will unite parents as a group
- (c) be a problem that the particular group of parents can do something about; and
- (d) be achievable within a reasonable period of time.

Step 2. Setting the Goal for Action.

Parents will need to determine:

- (a) What exactly do they want changed?
- (b) When do they want it changed?

To address to these points, fact finding may be necessary. Individual parents may thus be given responsibility for visiting schools, talking to children, talking to staff, visiting other educational institutions. After such information is collected, the specific goal for action can be set.

Step 3. Strategy Planning

Having set the overall goal for action, discussion will need to take place on the alternative ways of acheiving that goal. From a consideration of alternatives, a choice will need to be made of the desired course of action, i.e. the specific steps that will need to be taken to secure the most desirable results. The plan of action should be specific. For example:

- (a) People assigned to specific tasks;
- (b) Dates and times clearly agreed upon;
- (c) Opportunity for review and flexibility to alter plans if necessary. Each time the parent group meets it will need to consider it.
- (a) Is there any new information that is required?
- (b) Do any alterations need to be made in the existing plan?
- (c) Are the people assigned to each task still available to assume the responsibility?
- (d) When do the tasks need to be accomplished?

Step 4. Evaluating the Results:

For a parent group to remain committed and active it will need to have a sense of accomplishment, a sense of having made a contribution, of being able "to get things done." Evaluation is a necessary part of this. The parent group, in addition to evaluating the product of each specific action programme will also need to ask itself the following questions:

- (a) How are we operating as a group?
- (b) Does everyone agree with what we are doing?
- (c) What have we been doing which makes us effective?
- (d) What mistakes are we making?

Addressing these questions will bring issues or concerns out in the open. Open communication and trust is vital in any voluntary organization.

Part VI

Monitoring and Evaluation

Part VI deals with monitoring and evaluation in MLPM. Monitoring and evaluation are important sources of feedback to the entire process of planning. Performance appraisal at the micro level has its particular relevance, by feeding information on the realistic implementation of plans, programmes and projects to other hierarchies of the educational planning and management system.

Monitoring and supervision as essential components for tracking the progress of educational programmes and projects are being given new orientations, especially at the micro level. Chapter 23 makes an attempt to define the role of monitoring in the context of micro-level plan implementation, and the variables and indicators commonly used. Similarly, it describes the steps involved in upgrading supervision as a major intervention measure aimed at providing both administrative and academic support to the grassroot staff. A main focus of this chapter is to demonstrate the significance of these activities in day-to-day micro-level educational planning and management.

Chapter 24 deals with evaluation and corrective mechanism. Evaluation relies on reliable and relevant information and monitoring and supervision tending towards the crystallization of salient opinions regarding the entire plan, programme or project, its implementation process, and its achievement or failure. This chapter discusses the types and principles of evaluation, steps involved in undertaking such an exercise, and factors affecting the quality of evaluations. There is a separate section on project evaluation which is of direct significance for MLPM.

Chapter 25 is focussed on the concept and practices of educational management information system (EMIS) as a organized mechanism in support to monitoring and evaluation. This chapter underscores the need for an integrated approach to information management at the micro-level, stressing the need for micro-planners to make use of first-hand information available in the micro area for MLPM. It also touches upon the role and prospects for microcomputers to be used in developing and maintaining educational information system at the local level.

Monitoring, Inspection and Supervision

23.1 General development

Whenever any educational programme comes into operation at the micro-level, there arises the need for some kind of mechanism by which the progress of implementation can be readily assessed. Such a mechanism is generally referred to as the monitoring mechanism. Within the education system, monitoring covers activities of inspection and supervision.

For purposes of clarity it may be best to view monitoring as the *overall* management approach to check progress at all levels of the educational administration, and to view inspection and supervision as more specific monitoring tasks performed by the micro-level educational planner or manager. For monitoring to be effective, the involvement of capable supervisors will be essential.

In the past, school inspection was the common practice and inspectors formed an important group of employees under the Ministry of Education. Today, many countries avoid the use of the term inspection because it carries with it very hierarchical, authoritative and evaluative-cum-directional connotations that are not readily compatible with increasingly decentralized and participatory systems of educational development and management.

23.2 Monitoring

Monitoring is a part of general management. It aims at ensuring high efficiency and effectiveness of implementation of educational plans and programmes at the micro level. However well a programme or activity is designed, the inputs or services may not be delivered in the anticipated manner; or even if delivered as planned, were found to be insufficient for achieving the planned objectives. Modifications and adjustments therefore become necessary. There is a need to keep a close and critical watch on whether the desired interventions are taking place at the appropriate time and place and in the desired manner and whether any additional adjustment is required. Without doubt monitoring forms a necessary part of sound management and should be considered an important function of the micro-level management information system.

The principal objective of the monitoring system is to develop an effective means for collecting information and reporting on the progress of implementation and the status of resources input and utilization within the educational programme being implemented.

Monitoring is therefore the overseeing of the decision-making processes in programme/plan implementation to assure of the ultimate achievement of the goals. It also serves as a key link between implementation and planning by documenting experiences in implementation which would serve as data inputs into the next planning cycle. Monitoring is very much a matter of recording the facts of implementation so that at any point in time the micro-planner can obtain a reasonable view of the current status.

A common criticism, however, is that monitoring units do not provide information either in-time or in a relevant manner. If this is the situation then obviously monitoring is not serving its purpose and it would be necessary to reorganize the monitoring system.

In the context of MLPM this implies that the micro-planner should design and incorporate a sound monitoring system that would keep him informed as often as necessary of the activities taking place within the educational programmes and institutions for which he is responsible, and the extent to which these activities conform to the plan. The monitoring function would of course embrace both the educational and the resources sides of implementation. Whatever the difficulties or problems which emerge, the monitoring system should be able to clearly identify them so that the necessary corrective measures can be taken.

23.3 The monitoring process

The first task in introducing a monitoring system is to clearly identify the educational objectives, targets, strategies, and the concrete tasks and actions to be performed and the schedule.

Some of the areas where monitoring have been particularly useful are in relation to finance, staffing, buildings, equipment and infrastructural facilities. It is important to ensure that the schools and educational programmes under the responsibility of the micro-planners have adequate funds to meet liabilities and commitments, as well as a well-established system of accounting information to monitor the adequacy of funds and the status of expenditure under different activities. If expenditure can be correlated with actual development, the accounting information could also be used to monitor the extent of progress being achieved.

Similarly, *staff turnover and staff vacancies* often cause disruptions and inefficiencies in implementation. It would be important for the micro-planner to have at his disposal up-to-date monitoring information on staff vacancies and progress of various steps taken to fill the vacancies. This would help to take measures in ensuring that such vacancies are kept to the minimum.

Programmes for the building of infrastructural facilities and purchase of equipment are usually planned according to a time-schedule using programming techniques such as PERT (Programme Evaluation Review Technique). Monitoring information would be helpful in ensuring that the schedule is observed and that any difficulties could be dealt with and resolved within the shortest delay.

Achievements of specific micro-level objectives involves a series of planned operations each of which has to be completed at a specified time so that subsequent steps can proceed. Monitoring helps to ensure that various steps are completed by the responsible persons. Monitoring also helps in enforcing *accountability* for performance of various tasks by clearly bringing out how much of the tasks are performed, by whom in what time and with what quality.

In introducing a monitoring system one must also consider the question of costs. Too frequent monitoring, or monitoring with excessive data, can become not only costly but also counter-productive. A decentralized system of management would ensure that monitoring takes place at different levels with relevant data. For example, the headteacher of a school in a particular region will have a dual role in supervision, both for his own management purposes and on behalf of the micro-level educational administration. Therefore, the school headteacher is a key personnel in the monitoring system.

Not all the data that are collected for monitoring needs to be fed back to higher levels. A system of decentralized educational administration is one that has clearly defined responsibilities and accountability with the help of a good monitoring system.

To summarize, the essential features of monitoring can be expressed in the following way:

- monitoring is an integral part of management;

- monitoring functions at the micro level must be closely identified with the micro-level educational manager, and not be seen as an "external" intervention;
- prosaic infrastructural records, both administrative and financial, are at the heart of a monitoring system;
- information from administrative, teaching, ancillary and other staff forms an important input for monitoring purposes and ensures that the integrated orientation is maintained;
- supplementary data collection must be used to fill information gaps and not to duplicate existing sources;
- the key to success in monitoring is a combination of timely action, concise reporting, and flexibility in response to unexpected developments.

23.4 Supervision

Increasing emphasis is being given these days to improving supervision in education. The scope of supervision has also expanded to include not only aspects of efficiency and effectiveness, but also into the quality of the teaching/learning process.

23.4.1 Functions of supervision

Supervision is a function which each echelon in an organization exercises in respect of its immediate subordinates. The supervisor and his subordinates constitute a functional unit and every organization is composed of such units. These units, however, are not disconnected, floating entities in an organization. Each such unit is integrated into the organization because every supervisor, other than the highest authority, is a subordinate of a higher supervisor.

Each unit would, however, have a *functional identity*. Each supervisor is responsible for a set of activities, designed to accomplish a particular sub-objective of the organization.

23.4.2 What does a supervisor do?

A supervisor is expected to carry out the following functions:

- i. co-ordination;
- ii. technical guidance and backstopping or demonstration;
- iii. problem-solving in respect of both technical difficulties and human relations;
- iv. building or maintaining the morale of subordinates;
- v. representational function vis-a-vis the rest of the organization;
- vi. disciplinary control of his unit;
- vii. orientation, training and professional growth of subordinates.

In the performance of these functions, the supervisor assumes what management theory calls a *functional responsibility*. This means that the supervisor takes the full responsibility for the quality of the service that is rendered by his unit.

In this respect, the supervisor is an active part of the process by which the service is produced. The supervisor is not a by-stander or spectator merely watching what subordinates do. Nor is the supervisor

a critic who criticizes the process, the procedures or the people. Nor is he an evaluator who finds fault with other's performance with plenty of hindsight or after-the-event wisdom. Instead, the supervisor is actually a part of the total machinery taking full responsibility for everything connected with the service.

The supervisor uses his position of authority to co-ordinate the work of subordinates, build and maintain morale and exercise disciplinary control. He uses specialized management know-how to offer technical guidance and backstopping, solve technical problems, orient and train subordinates and arrange for their professional growth.

Through these sets of activities, the supervisor seeks to fulfil the functional responsibility he has assumed for the quality of the service in every respect, i.e. speed and promptness, satisfaction, minimum cost, etc.

The principle of functional responsibility makes the supervisor primarily *accountable* for whatever goes wrong. The supervisor is answerable for faulty work of subordinates, because either he has not oriented and trained staff properly or the technical guidance and follow-up is inadequate. It is also possible that the supervisor cannot inspire confidence in people and bring out the best of their abilities.

23.4.3 The efficient supervisor

An efficient supervisor has the following attributes.

- Sees each job as an important job
- Expects a lot from people
- Views mistakes as part of growth
- Makes accomplishment the basis for security
- Helps subordinates become oriented
- Sets the stage for mutual trust
- Recognizes that development breeds development
- Makes work experience meaningful
- Works for a climate of mutual concern
- Aims at freedom
- Recognizes the values in change

23.5 Supervision at the micro-level

As discussed earlier, the educational management machinery of a country is organized in a series of echelons, each supervising the work of the echelon below it.

The last link in this scalar chain is the one joining a *field supervisor of schools* with a particular school, or rather its teachers.

The designation of the field supervisor of schools varies widely. In most places this person has been called an Inspector of Schools. Some countries try to avoid the word Inspector because of its narrow functional connotation. They prefer terms like Circuit Education Officer, Education Officer, Supervisor, Organizer of Schools etc. Some call him a Superintendent of Schools or, sometimes, a Councillor. Whatever be the designation, this role in the micro-level educational management machinery is clear. This is the supervisory echelon just above the point from which the educational services for which the entire

organization exists, is given. That is, by and large the service rendered by an educational system is dispensed in the form of instruction at the schools by the teachers.

In many countries, this position is a most complex and difficult one. In many instances, field supervisors are entrusted with the supervision of hundreds of teachers distributed over extensive land. They frequently find it difficult to accomplish the various functions which are a basic minimum for a supervisor. The question thus emerges: What can be done to remedy this situation?

- i. *Reducing the workload:* In every country, a very strong case exists for reducing the area covered, the number of schools supervised and the teachers dealt with by a field supervisor of schools. As far back as 1959-60, the Karachi Plan urged a supervisor: teacher ratio of 1:144. Difficulties of transport and communication, apart from many other reasons, warrant such a reduction of workload. But only very few countries have come anywhere close to this ratio. It is urgent that something is done to improve the position. But still that would only be a partial solution.
- ii. *Separating administrative and academic functions:* As a second solution, this has been widely advocated. Some countries or regions within countries have tried this out. In effect, it is a measure of reducing the workload. Two separate field supervisors would respectively attend to administrative and academic aspects of a school. A question to be asked is whether these two aspects can be so neatly divided.

Experience in most places suggests that such a division of functions is not feasible due to practical difficulties: *First*, it amounts to doubling the number of field supervisors of schools; *second*, it places the teachers under the supervision of two persons, violating a very important management principle that *no person should have more than one supervisor*; and *third*, in the inevitable rivalry for influence, the supervisor with administrative functions tends to command more influence over institutions and teachers -- and even parents and the public -- than the purely academic supervisor.

Within a very short time of experimenting with such a division of functions, the tendency has been to return to the earlier position where both administrative and academic functions are rested in one and the same supervisor. It is true that the result is unfavourable to academic development because in a competition for attention and time, administrative duties have an edge over academic supervision. So some other kind of solution has to be looked for.

- iii. *Developing supervisory echelons between the field supervisor and the teacher:* If the reduction of workload is impeded by inadequate resources and the separation of administrative and academic functions is not feasible from a management point of view, the next best arrangement is to delegate the supervisory function to a series of echelons between the field supervisor and the teacher. Clustering and school complexes are typical measures going in this direction.

The next immediate level is the head of the school. Between the head and the teacher, depending on the size of the school, it is possible to have section heads either by levels or by subjects or both. Such section heads could perform all the seven functions of supervision more effectively than the field supervisor (who may visit the school once or twice a year) or even the head of the school. The main factor which would make their supervision more effective is that the section head is able to assume *functional responsibility* for the quality of teaching of his subject. In such a set-up, the task of the field supervisor would be to supervise the heads of schools and assume functional responsibility for conducting the school properly.

23.6 Role of the field supervisor of schools in academic supervision

Once a system of field supervisors is installed, the following four roles may be envisaged for each of them:

- i. Diagnosis -- problem identification.
- ii. Information -- dissemination of relevant technical know-how.
- iii. Evaluation and progress control -- overseeing the problem-solving process.
- iv. In-service training of teachers.

The reasons for reducing the number of schools per field supervisor have already been addressed. But only few countries would be able to reduce the number to 5-6 schools which management theory would recommend. It is possible that for many years even a target like 20 schools per supervisor would remain unattainable to many countries. With such a number of schools and the above list of duties combining administrative and academic duties, how can a field supervisor effectively exercise the four roles? Some possible methods are examined below:

23.6.1 Diagnosis

- Administer periodically to a random sample of pupils a diagnostic test in selected subjects and use the results to: (a) pinpoint deficiencies in the selection and coverage of curricular subject-matter; (b) identify shortcomings ascribable to methods of instruction; (c) note common errors and gaps for special treatment through the in-service training of teachers; and (d) pick out the schools or teachers that may require special attention by the supervisor.
- Review test papers and scores of terminal tests in selected subjects from a random sample of classes for the same purposes as above.
- Scrutinize the written work of a few of the pupils at the top and the bottom ends of the class on a random sample of classes, schools and subjects as a way of evaluating content, methods and teacher's attitudes.

It is important to note that all these are done by the supervisor either by circular instruction or at periodical meetings of heads of schools. By doing this the supervisor is able to obtain a fairly representative diagnosis of the instructional situation without waiting until he has visited the schools. Even when the supervisor visits a school, all he can do is a random sampling. The homework, which the supervisor does in the above manner, prepares him much better for the school visits. Besides, such visits would be more purposeful when he knows in advance who needs help and in what form.

23.6.2 Information

- Monthly Circuit Meeting when heads of schools meet with the supervisor for consultation, exchange of information and organization of collective activities such as examinations, competitions, sports meets, exhibitions, etc.
- Circuit Newsletter giving information on activities, experiences and/or experiments of interest to teachers, supplemented by an overview by the supervisor.
- Special reports on innovative experiments and experiences of certain teachers, including the supervisor's comments on how such experiments could be replicated.

- Abstracts or extracts of relevant publications identified by the supervisor with the assistance of teachers to motivate teachers to read professional literature and share interesting ideas with colleagues.
- Book circulation for example in the form of circulating library services to teachers.
- Teacher's Journals, publishing articles, letters, notes and comments on teachers -- a forum for them to exchange their views and experiences.

Once again, these are activities supplementary to visits. These maintain a liaison between the supervisor and the schools, during the long intervals between visits. Needless to say that the sharing of information is one of the surest ways of enhancing the morale of school heads and teachers.

23.6.3 Evaluation and progress control

The same modalities used for diagnosis, when applied at appropriate intervals, serve the purposes of evaluation and progress control, e.g. tests at the beginning of the year are *diagnostic* and at the end of the year *evaluation*.

23.6.4 In-service training of teachers

- Refresher Courses through "distance teaching methods" in selected subjects -- by correspondence, radio, video, etc.
- Refresher Courses, seminars, conferences, lectures and such other *contact sessions*.
- Workshops for special activities e.g. curriculum development; writing of modules and self-learning kits; preparation of course guides; making visual aids, etc.

While the monthly meeting brings the heads of school in contact with the supervisor, these establish a professional liaison between him and the teachers.

The above list illustrates how an imaginative and resourceful supervisor could exercise effective professional leadership despite his inability to visit schools more often. If even one only out of each of the four categories is tried out by a supervisor, the impact on the qualitative improvement of education in his area can be very high. It is not so much the supervisors' physical presence in a school that matters but what he does beyond and outside his visits to a school.

Evaluation and Correcting Mechanisms

24.1 Evaluation in the educational planning process

Evaluation is part of the micro-level educational management functions by which the process and results of implementation are critically analyzed in the context of previously determined strategies and objectives. Evaluation is crucial to the continuity and constant improvement of the planning mechanisms and process from the first stage in the planning cycle to the last. From this definition the two main purposes of evaluation may be mentioned. These are :

i) To ensure feed-back in the planning process

To analyze, measure and assess the:

- impact of the education system on the socio-economic-cultural complex, with an analysis of the contribution of education to satisfying the need for skilled human resources and to improve the quality of life of various population groups;
- efficiency of the education system, in terms of factors such as the growth of enrolment by level and type of education, repetition, drop-out, promotion, learning achievement, and relevance of output to labour-market needs, pupil unit costs, etc.;
- impact of the resources used in the education system; account being taken of the various sources, levels and components of the process (finance, material, teachers, teacher-training, etc.) - e.g. the effect of investments on enrolment ratios, results of re-organizing the learning process on improving the quality of education, etc.;
- degree of execution of plans, programmes and projects and the problems encountered during implementation - e.g. attainment of targets, delays in schedule, mechanisms for implementation, utilization of resources allocated, etc.

ii) To establish a continuous and permanent process of planning

This means that through evaluation information is obtained on significant deviations, on the causes of variations, and corrections to be made to attain the plan's general and specific objectives.

As a result of the foregoing considerations, evaluation may be broadly conceived of as being that of plans, programmes, project and budgets, and also of the impact of education on social, economic and cultural development. It may also, however, be narrowly thought of as limited to the means of the planning process and thus directly linked to the execution of programmes, projects and budget.

24.2 Characteristics of the process of evaluation

The process of evaluation has the following characteristics,

- i) *It considers the educational situation in the framework of social, economic and cultural development - i.e. it measures changes occurring in education in the light of the objectives of the country's overall development;*

- ii) *It uses a common language* whatever the degree of detail of the information, so that results and adjustments may be compatible and coherent across the levels;
- iii) *It establishes mechanisms for participation of different authorities* in the education system to reinforce the evaluation process;
- iv) *It uses specific studies and research* to improve evaluation results;
- v) *It procures reliable, appropriate and adequate information* which is significant in its relevance to the problems tackled: reliable by being based on objective criteria; appropriate for decisions to be made at the right time; adequate in respect of the kind and quantity of information required.

24.3 Evaluation levels

Evaluation of plans, programmes, projects and the education system in general may be undertaken at various levels: national, regional, zonal, local or institutional.

Evaluation levels are in large part determined by the *degree of decentralization* of the educational planning process. At each of the levels above the aims of education are different.

At the national level, for example, the conceptual framework, the criteria and the evaluation indicators put the stress on the relationship between the functioning of the education system and the overall social, economic and cultural development, as likewise on the execution of the national plan and of programmes and projects, with due account taken of the objectives.

At the other extreme one finds evaluation at the *institutional and local levels*. This deals with the detailed execution of the programmed activities and resource utilization in the light of the objectives foreseen. Results may be expressed in both quantitative and qualitative terms including case study reports.

It is to be noted that already available indicators of evaluation may have built-in bias towards the provincial or national level evaluation. For the purpose of MLPM, it will be important to evaluate the programme also from the view point of the local community, environment and their aspirations.

24.4 Types of evaluation

According to the stage at which evaluation takes place, and its relation to execution, one may distinguish: between three types of evaluation

- a). preliminary feasibility evaluation;
- b). concurrent evaluation;
- c). final evaluation.

24.4.1 Preliminary feasibility evaluation

This is an analysis of the coherence and consistency to be found in the formulation of a plan, and is a matter of examining the *plan's feasibility*. At the micro level, it is desirable to verify whether the objectives have been correctly formulated and whether they will contribute to solving the problems found during local diagnosis. Verification should also be made of whether the specific objectives and the programmes and projects correspond to the plan's objectives, and whether it will be possible to carry out the plan with

the resources available, the existing administrative capability, and taking into account other internal or external factors.

Among *external factors* are demographic, socio-cultural, political, administrative, economic and ecologic aspects, insofar as they influence the development of the education system. It is to be noted that these factors are normally considered in *the diagnosis of the micro-level education system and of its context*. Using to the fullest extent possible the information contained in the diagnosis an analysis could be made of the external factors during the preliminary evaluation in case constraints might appear on the proper execution of the plan.

Internal factors concern the elements contained in the plan. Here it is a matter of analyzing the plan's internal coherence - i.e. of seeing if the general objectives are suitably formulated, and if the specific objectives, strategy, programmes and projects adopted will enable the general objectives to be attained.

Generally the analysis of internal coherence is centred on pupil flow in the various levels and types of education, on the changes foreseen by the plan and on the pre-conditions for these changes, on the availability of human and financial resources, and on the administrative capacity to implement the plan.

24.4.2 Concurrent evaluation

This type of evaluation takes place during implementation of a plan. In operational terms, it is the observation of plan execution, to the extent that it is a matter of surveying the progress made in implementing what is programmed with a view to supplying information which will enable corrections to be made of any deviations or divergencies in the actions undertaken to attain the plan objectives.

This type of evaluation needs to be carried out continuously and to be reflected in the periodic reports covering the diverse aspects of the plan. It has as its main result the immediate taking of corrective steps to secure better implementation of the plan.

Generally in concurrent evaluation the degree of programme execution is ascertained in respect of financial, administrative, material, academic and technical aspects. Observations may deal with the plan as a whole or in detailed form, according to its various programmes, projects or activities.

24.4.3 Final evaluation

Often referred to as summative evaluation, final evaluation has a double aspect. On the one hand it coincides with the final phase of concurrent evaluation and with a view to improving later plans, analyzes results, problems, difficulties and deficiencies in coherence detected during execution of a plan. On the other hand it should be directed towards the development of the micro-level education system so as to identify problems to be solved. In other words, subsequent evaluation concentrates on the results of the implementation of a plan for educational development and on the impact of education on social, economic and cultural development.

24.5 Evaluation focus at the micro-level

The former aspect has, in practice, been considered during the final phase of concurrent evaluation since it is a matter of comparing what was programmed with what was executed. Notwithstanding its significance, the second aspect does not really get examined that often. Hence it is desirable to study

further subsequent evaluation, which is directed towards the analysis, measurement and assessment of the development in education. At the micro level especially, this evaluation can be made according to :

- i) impact of education on the socio-economic-cultural situation;
- ii) efficiency of the education system; and
- iii) resources used for education

24.5.1 Evaluation of the impact of education on the socio-economic-cultural system

This evaluation is centred on the satisfaction of the demand for education and the needs for social, economic and cultural development. For the former, analysis is made of the demand for education, the levels of enrolment, the trends observed as regards children not in school during the compulsory school-attendance age, imbalances between the sexes, disadvantaged population groups, ethnic groups, etc. For the latter, the contribution of education to social, economic and cultural development, it is assumed that the system should meet the needs for skilled human resources expressed in the social, economic and cultural development plans. In this connection, concurrent evaluation puts the accent on the *relation between education and productive work*, on the impact of education on modifying the educational profile of the active population, and on the careers of those leaving on completing various levels and types of education.

Another aspect of this evaluation is the direct contribution of the education system to *social and cultural development* objectives. Evaluation of this dimension presents certain difficulties, on the one hand because of the various meanings that the expression "social and cultural development" can have and on the other because of the complications in measuring the contribution of education to social and cultural development. For this purpose, evaluation should be centred on the actual content of education so as to determine how far it influences the acquisition of habits, attitudes and principles favouring social and cultural development, and consequently the ability to benefit from it.

24.5.2 Evaluation of the efficiency of the education system

This deals with the actual functioning of the system. For this purpose, analysis should consider variables and indicators, both quantitative and qualitative, taking into account trends from assessment of enrolments, by levels and types of education, in school or out-of-school.

As for analysis of the quality of the education provided and the factors influencing this, evaluation looks at teachers, curricular content, textbooks and educational material, the administration of education, and costs and financing.

24.5.3 Evaluation of the resources used by the education system

This takes on a particular importance, since these resources represent a high proportion of the national budget. Analysis, within the framework of subsequent evaluation, of the employment of human, financial and material resources should make it possible to determine the options aiming at the most cost-effective development of education.

24.6 The evaluation process

In general terms, eight phases of evaluation can be distinguished:

- 1) Formulation or re-formulation of educational policies, plan, programme, project and budget
- 2) Determination of evaluation objectives and levels
- 3) Choice of indicators
- 4) Selection of evaluation criteria
- 5) Preparation of indicators
- 6) Measurement and analysis
- 7) Recommendations
- 8) Decision-making

24.7 Use of Indicators

For *selection of indicators* it suffices to choose from among them those which have been used during diagnosis and plan preparation and correspond to the matters selected for evaluation. A group of *evaluation criteria* needs to be established since the very concept of evaluation implies a comparison with the minimum, medium and optimum levels by means of indicators.

For the *preparation of indicators* it is desirable to conform to certain criteria of exactitude, objectivity, comparability and availability. According to the matters evaluated two groups of indicators may be distinguished.

Those of *substance*, which use statistical, documentary, technological or scientific information concerning the relation between education and socio-economic-cultural development, or concerning the internal efficiency of the system.

Management indicators, for evaluating the execution itself.

The next phase in the evaluation process, that of *measurement and analysis*, consists of the use of indicators and norms. It results in *recommendations*, which serve as a basis for *decision-making* by those responsible so that adjustments or *reformulation* of the plan may be undertaken. This should enable problems to be solved and observations to be corrected, both of these being identified during evaluation.

Thus the evaluation cycle ends and a new cycle begins. Of course, the major conclusions and recommendations are included in reports.

24.8 Effective evaluation process

An effective evaluation process in a plan or programme should have relevance, credibility, timeliness and efficiency.

- a. Relevance - It must apply criteria valid for the measurement of the objectives of the plan.
- b. Credibility - It should be judged objectively so that biases are not suspected.
- c. Timeliness- It should continue throughout the implementation of a plan, and its results should be available when decisions have to be taken.
- d. Efficiency - The evaluation should aim at minimizing its own cost and maximizing its output.

24.9 Some principles of evaluation

Evaluation may be regarded as a process of providing valid and appropriate data for relevant decision-making. Several implications may be derived from this definition.

- a. Evaluation should be viewed as a process rather than a product, so that interactions among component parts of the evaluation system are as important as their outcomes.
- b. Evaluation should not be a limited event occurring at a single point in time. Since change is a central focus in educational matters, it is imperative that evaluation takes place at repeated time intervals.
- c. The first stage of any evaluation entails the careful identification of the kinds of data that are most desirable and feasible.
- d. The person undertaking evaluation should recognize that the very process of collecting data can interfere with its reliability and validity.
- e. An inherent danger in data analysis is the tendency to force data into the mould of one's pet analytical techniques.
- f. It is more important to check the validity, at least internal if not external, of the data, for doing the right things is more crucial than doing things right.
- g. The description of the individuals and situations sampled in evaluation should not be neglected.
- h. The importance of determining the "why" of outcomes should not be overlooked.
- i. Since plans are future-oriented, evaluation data are particularly useful if they aid in predicting future situations.
- j. Critical decision-makers may not be very conversant with evaluation, nor even in some cases with education itself; hence the need to couch the evaluation report in readily understood terms.
- k. As decision-making entails having to make judgements regarding appropriate alternative actions, the evaluator has the responsibility not only of suggesting alternatives but as far as possible of providing the decision-maker with viable criteria.
- l. In order that decisions be meaningful, a certain amount of specificity is necessary.
- m. Even if evaluation is directed at educational outcomes, criteria for judgement would be incomplete without reference to the original plans.
- n. The evaluation of educational plans should not terminate with the completion of plans but should also be concerned with how well they have been implemented.

24.10 Who are the evaluators?

Whilst in many instances evaluations or evaluation teams have been people **external** to the particular programme or institution, it is now considered important that in any evaluation process the emphasis should be on *participation*. Hence, while external experts may still be called upon to provide the benefit of their skills and, at times, their objectivity, the decision to involve such people will come about as a conscious decision on the part of the members of the system or programme being evaluated.

Indeed, it follows from the concern with participation in the planning phases that there should also be a concern for the participation and involvement of as many people as possible in the implementation and associated evaluation phase.

Evaluations which can be seen as part of the on-going development and implementation cycle and which involve people who are part of the overall plan - whether as designers, as implementors, or as receivers -- are likely to be seen as less threatening and hence are more likely to reach valid conclusions and more acceptable and accepted conclusions than evaluation mounted from an "external" position.

24.11 Strategies for Project evaluation

It is difficult to provide description of all the strategies which might be employed by the micro-planner in ensuring appropriate evaluation of the micro-level education system and/or of its various elements or components - whether these be institutions, existing programmes or new projects. However, in this section the focus will be on *project evaluation*.

24.11.1 Objectives of project evaluation

The major objectives of project evaluation are:

- i. To aid in making decisions about a project in order to determine the amount of funds which should be allocated.
- ii. To improve strategies through choice of alternative techniques and provisions for technique refinement in an iterative process of evaluation.
 - *Iterative process* The decision-maker selects an alternative, solicits a competitor alternative, compares the two, selects the better one, solicits another competitor, compares again, selects the better one, etc... until the search is justified. The primary objective is to find out which technique work best under certain conditions.
 - *Technique choice evaluation* This is the judgement on the relative effectiveness of existing and new alternatives.
 - *Technique refinement* This gives continued feedback on the effectiveness of particular aspects of a project to determine changes that will make it perform better.
- iii. To monitor specific projects measures (compliance control) e.g. administrative practice, adherence to regulations and guidelines.
- iv. To develop information or data systems about the past and present operation and to build capabilities for further evaluation, i.e. to improve future evaluation efforts.

24.11.2 Types of project evaluation

Evaluation, in general, may be delineated into four types, namely: context, input, process and product.

- i. *Context evaluation* This is the most basic type of evaluation. It has the following functions:
 - Serves in the determination of objectives
 - Describes the boundaries of the system to be evaluated
 - Defines its relevant environment

- Delineates the actual and the desired conditions
 - Identifies unmet needs and unused opportunities
 - Diagnoses and analyses problems
 - Monitors the system to maintain a current baseline of information and provides a basis for widespread communication and control
 - Looks for new emerging value orientation.
- ii. *Input evaluation* The purpose of this type of evaluation is to provide information for determining how to use resources to meet programme goals through identifying and assessing the following:
- relevant capabilities of the responsible agency
 - strategies for achieving goals
 - designs for implementing selected strategy

It also provides information on whether outside assistance is required, how the objectives should be stated operationally, what strategy should be adopted and what operational plan should be employed to implement that strategy.

- iii. *Process evaluation* Once implementation has started, this type of evaluation comes in to provide feedback for the following variables:

Objectives:

- To detect or predict defects in the procedural design or in its implementation
- To provide information for programmed decisions
- To maintain a record of the procedure as it occurs.

Strategies:

- Identifying and monitoring continually potential sources of failure in a project
- Projecting and servicing programmed decisions to be made by project managers during the implementation of a project
- Notifying the main feature of the project design and describing what is actually taking place.

It is essential to have continuous feedback about the project so that process evaluation can perform a vital function. Information is delineated, obtained, and reported as often as required - daily, if necessary - especially during the early stages of a project.

- iv. *Product evaluation* The purpose of product evaluation is to measure and interpret attainments not only at the end of a project cycle, but as often as necessary during the project term.

The methods are:

- Devising operational definition of objectives
- Measuring criteria associated with the objectives of the activity
- Comparing these measurements with predetermined absolute or relative standards
- Making rational interpretation of the outcomes using the recorded context, input, and process information.

As a summary, context evaluation determines the specifications for product evaluation, while input evaluation provides the specifications for process evaluation. However, operationalization by input evaluation for assessing the extent to which these criteria have been achieved are the bases for designing product evaluation. Product evaluation investigates the extent to which objectives are being attained. Process evaluation assesses the extent to which procedures are operating as intended. Both types provide feedback for control evolving change procedures in process. Product evaluation would go on throughout, leading to a reformulation of the change to be brought about, modification either in strategy or procedure and termination of the change effort.

24.11.3 Characteristics of good project evaluation

A good project evaluation should have the following characteristics:

- i. It should be realistic and relevant to decision-making, i.e. it takes into consideration the source of evaluation and brings out fully the implications to the decisions to be taken.
- ii. It is in the context of expectation or objectives, assumptions, and specific projected measures of change.
- iii. It has visualized both the immediate and long-term conditions of success.
- iv. It is credible (based in part on technical competence and in part on the evaluator's reputation for independent appraisal).
- v. It is scientific (involving collection of facts and their systematic interpretations).
- vi. It is supported by quantitative analysis and full statistical information as a basis for modifying hypotheses.
- vii. It has healthy skepticism, i.e. all aspects of project appraisal have been looked into with specific expertise.
- viii. It is continuous and forward-looking.

24.11.4 The evaluation process

1. *The feasibility study* A feasibility study may be defined as the systematic gathering and analyses of data and the formulation of conclusions therefrom. It examines the practicability or chances for success of a project or undertaking.
2. *Significance of the feasibility study* If the decision to start the project is on the basis of the feasibility study, the study may well become the master plan for implementing the project. The study will enable one to foresee problems that may arise in the course of implementation, to plan alternative courses of action and to make necessary revisions. It will also help in the formulation of a long-range plan.
3. *Criteria for project evaluation* The contribution of a project to the economy can be shown by measuring the return of the investment from the viewpoint of the society as a whole, or by citing the specific characteristics of the project which are beneficial to the country. The rate of return to society pertains not only to the economic benefits but also to the improvement of the social and cultural uplift of the community in particular and to the nation in general.

24.11.5 Criteria in the ranking of projects

Project ranking is inevitable where resources are scarce and funds must be apportioned to yield the most social benefits. Projects may be ranked according to the following criteria:

- i. urgency
- ii. impact
- iii. direct relationship to development objectives
- iv. soundness in technical, financial, and institutional feasibility
- v. acceptability to the people
- vi. benefit-cost ratio, Internal Rate of Return (IRR), and Net Present Value of net benefits (NPV)
- vii. range of geographic and population coverage
- viii. number of purposes the project will serve
- ix. making an optimum use of available resources
- x. indicate the actual implementation of the project
- xi. must be based on sectoral and market studies.

Urgent projects are those which, if not implemented, would result in virtual losses: such as losses in employment opportunities if specific demanded training programmes are not conducted, or lives in the case of projects to eradicate epidemics. Projects with impact are those that affect favourably the lives of the population served. Projects related to clear development objectives qualify for projects to be considered for implementation. The technical or engineering feasibility, the availability of funds and cash-generation capability, and the existence of effective implementing bodies qualify a project from the practical viewpoint. Also an important consideration is the project's acceptability to the people intended to be served. Thus Gunmar Myrdal, in his monumental work, *Asian Drama*, says that a technology-oriented project must be accepted by the population to succeed, the people must be of a certain cultural and educational level, or else they must change to accommodate the newly introduced technology. The benefit/cost ratio, IRR and NPV show the direct advantages of the project when a project is estimated to provide more direct benefits to society than others. The present value of benefits must exceed that of costs; and the higher the ratio, the more chances for a proposed project to be implemented.

The area served is also important in both a geographic and a demographic sense. The more people served and the wider the service area, the better.

Where it is not feasible to quantify benefits, the purposes the project will serve must be stated. The benefits in terms of social well-being, better income distribution, contribution to industrial development cannot be quantified but they may be as significant as quantifiable income benefits.

24.12 Observations on micro-level evaluation

Evaluation is an exceedingly important function which is crucial for an educational development plan to be assessed in the context of the original objectives. Not only that, all the mid-course adjustments in the planning process can take place legitimately only with the help of evaluation. The precise nature of

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evaluation follows from its all encompassing nature. It can take place at any point during the planning process as well as can be undertaken at the end of the plan cycle.

In the context of MLPM, it becomes even more important because micro-level activities often take place on the behest of distantly placed stimuli. Consequently, quite often the intended nature of the activity gets warped by the time it actually takes place on the ground. This kind of distortion could take place due to any number of causes. The plan and/or programme may have been conceived with some disabilities. The functionaries and other responsible for giving it a shape may not have been able to give effect to it as intended. Or alternatively, the local ecological and environmental conditions may not have been compatible with the plan requirements. It is only through the process of evaluation that one can discern the actual cause of indifferent or excessive performance. Insights and understanding developed on account of a proper evaluation can not only lead to improvement in the subsequent trails in the same region/programme but also can be extremely educative for similar plans to be launched elsewhere.

Educational Management Information System (EMIS)

25.1 Information in decision-making

Sound micro-level decision-making is determined by the availability of adequate information support and the ability of the decision-maker to make good use of it. These days, a lot of information on educational development is collected through routine record-keeping and administrative reporting. However, little use is made of this information in decision-making particularly at the micro level. To improve decentralized planning and management of education, a great deal remains to be done by way of strengthening the entire educational information management system, from the organization of collection of data to subsequent information-based decision-making at all levels of the educational administration.

In MLPM, the critical edge lies in improving micro-level capabilities for information handling and utilization. The emphasis is on promoting the direct use of first-hand information collected at the micro level by the micro-planner. Increased use of such information will not only improve MLPM decisions, but also sharpen insights, skills, techniques, as well as generate additional information needs - in terms of scope, coverage, details, focus, quality, precision, relevance, comprehensiveness and timeliness.

With the explosion of knowledge and advances in information and communication technology in the world, information handling capacities have increased manifold. Management information system is a special field in information science which deals in an integrated manner with the process from collection, storage and processing of data to their analysis, dissemination and use. Its application in the education sector has led to the development of new approaches in Educational Management Information System (EMIS).

25.2 Integration of Information

The main aim of EMIS is to integrate and piece together all relevant information for the planning and management of educational activities at the micro level. It attempts to provide such collected information in a comprehensive form to the local decision-makers so that effective decision making could take place. The impact of the decisions and actions taken with the help of an EMIS will be greater than the combined effects of individual actions carried out on separate bits and pieces of information. That is why integration of relevant information is an important aspect of any MIS. There are several reasons that can be cited underscoring the need for such an integration.

Firstly, educational activities of both the formal and non-formal types are operated at the micro level by a host of governmental and non-governmental bodies, and by different sectors. The need to co-ordinate all these educational activities in order to optimize their combined use of resources as well as to maximize their educational impact has drawn increasing attention to the integration of all information resources. Through the provision of unified and comprehensive information within an EMIS, sound decision and planning can be taken and effective co-ordination, monitoring, evaluation and management can be accomplished.

Secondly, much information for educational planning and management is fragmentary in the sense that it may have only partial scope or coverage. Duplicate and conflicting information is often encountered.

This in many instances has been due to the intersectoral nature of the educational administration and the multiplicity of agencies involved in the collection, processing and dissemination of related information. Unclear definition of mandate, uneven distribution of duties, as well as differences in competencies of functionaries responsible for the collection of educational management information often lead to information jams and confusions.

Thirdly, for traditional reasons and perhaps also due to the ease of operations, emphasis has always been placed on statistical or quantitative data. These days, more and more attention is being paid to the qualitative aspects of educational activities and decisions are being made using both quantitative and qualitative data as a basis. The micro-planner, having the advantage of being closer to the educational events, will be able to gain direct insights into many of the qualitative aspects.

Fourthly, with the mass of data collected, how to apply various information analysis techniques to refine and extract the salient information has been a major handicap for most educational planners and administrators, especially at the micro level. An EMIS integrates the analytical function by incorporating methods and techniques for refining data into information.

Finally, an important component in modern integrated EMIS is the incorporation of what is normally called "user-friendly" decision tools, in the form of easy-to-use analytical facilities such as graphical presentations, projection and simulation models, in aid to micro-level educational planning and management. With the incorporation of such techniques of analysis into the EMIS it can be applied and used by the ordinary educational administrators.

Therefore, if one is to summarize the underlying principle of integration in EMIS, it may be seen along the following seven dimensions:

- (a) Integration of related data from different sources, such as : school-age population, enrolment, teachers, facilities, household characteristics, employment, socio-economic indicators, etc.
- (b) Integration of both quantitative and qualitative data;
- (c) Integration of the complete information handling process: collection, verification, processing, storage, analysis, dissemination and use;
- (d) Integration of both empirical data and analytical tools such as software and models;
- (e) Integration of both manual and computerized processing, storage and analysis;
- (f) Integration of producers and users of management information; and
- (g) Vertical and horizontal linkages of EMIS centres at various levels for the sharing and exchange of information.

25.3 Objectives of EMIS

In essence, an Education Management Information System (EMIS) at the micro level has the following objectives :

- a) to provide educational planners, administrators and managers with reliable and timely data and information necessary for decision-making;
- b) to co-ordinate efforts in the acquisition, processing, storage, analysis, repackaging and dissemination of education management information;

- c) to strengthen the capability of the micro planner to manage, plan and control the flow of information among related agencies in various sectors;
- d) to facilitate and promote the use of relevant information by various agencies and individuals at all levels for more effective educational planning, implementation and management;
- e) to streamline the flow of information for decision-making by reducing and eliminating duplications as well as filling in information gaps;
- f) to unify various existing information systems;
- g) to integrate various quantitative and qualitative information resources under one system; and
- h) to expand the collection and dissemination of information related to all aspects of education.

25.4 Organization of EMIS

By definition, an EMIS is an organized group of information and documentation services that collects, processes, stores, analyzes and disseminates information for educational planning and management and renders aid in the use of such information.

Within the national educational administration, an EMIS is a conglomeration of one or more information services located at the central, regional and local levels. These services are linked together, vertically and horizontally, within the EMIS for the sharing of information and responsibilities in operations related to information handling, (i.e. collection, processing, storage, analysis, and dissemination to the users).

Co-ordination within the context of EMIS is closely associated with the concept of an information network. Exchange and flow of information being the essential function of EMIS, each information service within an EMIS cannot operate in isolation, but rather in close co-ordination and co-operation with other related information services.

By referring to EMIS as a "system" implies that it is involved in the transformation of input into output through a process. The input here is raw data on the schools, enrolment, teachers, facilities, financial resources, etc., which is processed, stored and transformed by the EMIS into salient information output for decision-making in educational planning and management.

An EMIS embodies mechanisms to analyze, refine, synthesize and transform raw data into relevant and useful management information. Capabilities to repackage information into forms that facilitate immediate interpretation and use in support to decisions is also one of the basic requirements.

The organization of an EMIS may be best described according to each of the following aspects :

- Institutional framework
- Informational dimensions
- Operational requirements
- Network structure

25.4.1 The institutional framework of EMIS

An EMIS is frequently established and gradually developed by transforming, amalgamating and expanding existing education information facilities, such as the education statistics unit, the education information and documentation services, and units and departments holding various local administrative

records for education. The purpose is to integrate the various sources of education management information into one co-ordinated system for purposes of sharing of information.

In relation to agencies and institutions in other sectors at the micro level that are also engaged in educational activities, an EMIS serves the double function of linking the local education office to these agencies and institutions by establishing and maintaining the exchange and flow of information, and in so doing carries out its overall supervisory and co-ordination function in education and training within the multi-sectoral framework at the micro level.

EMIS, however, is mainly directed towards the integration of information resources rather than at merging physical establishments that handle information. Units and services at the micro level like the education statistics units, educational information and documentation services, and administrative services that manage teachers' payroll, financial accounts and other administrative information do not therefore necessarily need to be physically merged in order to accommodate the system.

Micro planner should make efforts to rationalize and strengthen the existing information structures and improve information flow, in such a way that the local EMIS centre may have constant access to data needed for micro-level educational planning and management that are collected by other agencies. For example, a micro-planner would continuously require information on the local demographic patterns, employment, production, households, etc. The strengthening of the data storage capacity of the local EMIS centre to incorporate on a regular basis relevant data elements from the other sources is recommended, as a way to speed up the process of identification, search, retrieval and analysis of information.

Such rationalization also includes sorting out of duplicate and redundant information. With the help of, and in consultation with higher level information centres, disparate data collection instruments and procedures at the micro level could be standardized and streamlined. It should be accompanied by the introduction of appropriate data flow mechanisms and channels for the exchange of complementary information.

As the crucial interface between the producer of information and the users, a variety of methods and means are currently available for better dissemination of information such as wall posters and charts, regular and specific information summary pamphlets, yearbooks, bulletins and also briefing sessions. In the micro area, every effort should be made to share and disseminate information on local educational development.

As different and yet parallel information channels and record systems function within different sectors at the micro level, priority should be given to the horizontal integration of different information elements and records that are related to local educational planning and management. This may be done by the micro-level EMIS service within the local education office assembling the relevant education management information not only from the education institutions and programmes directly under its purveyance, but also from local agencies from other sectors that are operating within the area. Such data, for example, may relate to the geographical, age and gender distributions of the local population, literacy level and educational attainment, household composition and income, detailed financial budget allocations, employment, and also topographical information for use in school-mapping.

In terms of structure, a national EMIS is composed of a network of micro-level EMIS units that collect, process, store, analyze and disseminate education management information related to a specific local geographical area. Besides using the data for micro-level educational planning and management, these units also report and provide local-area data to EMIS units at higher levels which will store and analyze further the data before collating and supplying them to the central national EMIS centre. At each

level, the EMIS units will be responsible for gathering data on all educational activities, be it formal or non-formal in nature, that take place within its geographical coverage.

25.4.2 Types of EMIS Units

As mentioned earlier, micro-level educational planning and management operates within the framework of multi-level national planning and management. So is the case of EMIS. It may therefore be useful to examine the place of the micro-level EMIS within the national information system.

The overall national EMIS system includes a central national EMIS centre together with sub-national EMIS units at the provincial, district, county, township and village education offices. As nodal points within the national EMIS network, the micro-level EMIS units collect and process information from sources such as the schools and local educational institutions and programmes, as well as from parallel information units belonging to other sectors and agencies. Furthermore, the micro-level EMIS unit receives feedback information from EMIS units of higher levels. This is an important feature of the EMIS in promoting and facilitating the exchange of educational management information.

Specialized EMIS units may also be established to focus on specific types of educational activities and operations concerning specific subjects or major fields, dealing with particular geographical areas and target population, as well as with precise educational functions such as curriculum development, examinations, etc.

EMIS units may therefore be classified into three major types :

- a. comprehensive area type;
- b. specialized function type; and
- c. specialized information type.

Most micro-level EMIS units belong to the first type, which are responsible for collecting and handling all management information concerning the geographical area that each of them covers. The second type may be specialized in certain information functions and techniques such as dealing only with the processing and analysis of information, or in dissemination by way of publication. The third type of EMIS units are those that collect and hold information related to certain specific aspects of education, such as those relating to formal or non-formal education, pre-school, technical/vocational, or special education, or education for particular disadvantaged areas or population groups, etc.

25.4.3 Informational dimensions of EMIS

An EMIS collects, processes, stores and disseminates both quantitative and qualitative data. Statistics on literacy, enrolment, teachers, budget and expenditure are typically quantitative. Information on the characteristics of schools, facilities, curriculum, and staff qualifications are predominantly qualitative.

Some of the basic information needed for micro-level educational planning and management are given in the Annex to this Chapter. Additional information needs may pertain more specifically to individual geographical areas, particular types of educational and training operations, or distinctive target groups. It may be constantly kept in mind that information needs change with time. It is the responsibility of the micro-level EMIS units to consistently adapt to these needs by adjusting and including the appropriate information elements.

Education management information is particularly useful when it is available for different geographical zones. This would enable the analysis of discrepancies in the distribution of educational activities across the local area. Similarly, the availability of consistent data over time is crucial in assessing the changes taking place over time and the progress made. The collection of information by chronological order for the purpose of building time-series is very much necessary. Furthermore, in areas where high degree of social, cultural, ethnic or religious heterogeneity exists, it may be useful to have separate informations according to their types.

25.4.4 Information storage at EMIS units

EMIS units store information in the form of data bases. A data base is an organized storage of information of similar nature and type that permits easy access, search and retrieval of information. Data bases can be manual paper files or computerized. Small data bases such as those kept at the micro level can be operated manually.

According to the level of management operations, the geographical area covered, and the size of information, the kind of data bases to be maintained may vary. Some standard data bases common in most EMIS's are as follows :

- a) Statistical data bank - containing statistics on literacy, enrolment, teaching staff, physical facilities, budget and expenditure, etc., by various cross-classifications such as by level of education, type, sex, age, grade, etc.
- b) School directory - listing all schools by name, address and characteristics such as level, public/private, boys/girls/co-educational, specialization, etc.
- c) Pupil/student records - listing name and various characteristics of pupils/ students, their educational history and past performance, family background, etc.(in some cases, only summary statistics on pupil/student enrolment, repetition, drop-out by level, age, grade, sex, etc., by geographical distribution are collected);
- d) Personnel directory - listing all teaching, administrative and other staff involved in educational activities with characteristics such as sex, age, grade, function, qualification, specialization, past experience, etc. This may also include salary scale and be used in payroll management.
- e) Inventory of educational facilities and equipment - which keeps track of the type, quantity, location, state, use and other information on educational facilities and equipment.
- f) Finance - maintaining detailed records of budget allocations and various expenditures.
- g) Non-formal education programmes - storing information on all organized non-formal education programmes such as type, level, subject-field, sector, location, duration, participation, teaching staff, number of graduates, etc.
- h) Examination - storing, processing and disseminating examination results and records.
- i) Curriculum management - maintaining records of curriculum design and production of textbooks, teaching materials, aids and guides, audiovisual materials, and evaluation results.

Depending on the amount of data and information handling capacity at the micro-level, some databases may cover one or more levels and types of education: pre-primary, primary, secondary, tertiary, technical/vocational and non-formal education, and public and/or private education. Databases such as

(a), (b) and (c) above are sometimes merged into one in data storage but producing information output covering different aspects of education. At the micro-level, special databases may be built to deal with specific kinds of information of local interest such as the geographical location of households and population for use in local-area school-mapping, or the characteristics of various local disadvantaged population groups.

25.4.5 Computerization

With recent technological advances and the proliferation of use of microcomputers, there is an on-going trend in many countries to gradually computerize decentralized educational offices using microcomputers.

This process aims at modernizing educational planning and management mechanisms and operations at all levels of the educational administration, especially through the building of local capacities to process, retrieve, analyse and use information for decision-making. Such capacity building is usually accompanied by equipping the micro-level EMIS units with microcomputer hardware and specialized EMIS software applications, and training the personnel in computer operations.

There are mainly two types of EMIS computer software applications. The first covers database management systems (DBMS) related to the kinds of databases mentioned in 25.4.4 above. This type of software enables the organized recording, storage, processing and retrieval of information for routine and/or ad hoc reporting. A common approach adopted is to computerize the annual school reports and build this into a permanent information base on all school facilities in the local area. Other databases on educational needs, personnel, finance, examinations, extension services can be added.

A second major type of EMIS software applications englobes various computerized tools for data analysis and aid to decision. These vary from simple software applications for calculating educational indicators such as enrolment ratios, pupil-teacher ratios, and Sprague Multipliers to assessment of internal efficiency and projection using the reconstructed cohort student flow model, to more sophisticated knowledge-based simulation models such as those for the integrated planning of Education for All and manpower planning developed by Unesco.

An important feature of a computerized EMIS is in its ability to rapidly generate educational management information for immediate dissemination and use. At the micro level, this may take the form of periodical information bulletins depicting various aspects of educational development in the local area. Besides, there are the day-to-day transactional data related to performance monitoring and evaluation, financial management, vacancies, recruitment, transfer and promotion of teachers, management of physical facilities, etc.

In some countries, computerization of EMIS is helping to bridge a traditional gap in educational administration, namely the feedback of information to lower levels. This is rendered possible by automating the systematic generation of more meaningful information output on each local area based on the local data supplied. For example, raw data reported by a micro-level EMIS unit can be computerized at the higher level to calculate various performance indicators. The results of such calculations are communicated back to the corresponding micro-planner, possibly together with the national average as well as those relating to neighbouring local areas, for comparison and management adjustments.

In general, these new approaches to EMIS are seen to gradually complete and improve the management information cycle, by strengthening the linkages between the different phases: from data

collection to processing, to storage to retrieval, and most important of all, to more frequent analysis, dissemination and use of educational management information. It is only by thus bridging the gap between producers and users of information that new information needs can be in turn taken into consideration and satisfied.

25.5 EMIS at the school level

Taking a country with five levels of educational administration, for example : at the central, provincial, district, village and school levels, the aim will be to establish some kind of EMIS units at all of these levels.

This does not however imply that all such units will have to be equipped with microcomputers and staffed by information specialists. Specific needs for information for decision-making and the types and amount of data that can be collected and processed at each level are so different that requirements in physical facilities and personnel for information operations can be satisfied in various ways.

At the school level, for instance, all information regularly collected that relates to pupils enrolled by grade, age and sex, teachers, buildings, furniture, equipment, attendance, repeaters, drop-out, etc., apart from being provided to the local education office for collation and further transmission, should be systematically stored at the school level and used in the day-to-day actual school management.

Many schools in fact keep systematic records - of pupils, teachers, attendance, etc. The content, format, definitions and classifications employed may however vary considerably from school to school, and from one geographical area to another. The nature of concerns in school management and informational requirements being similar, particularly for schools of the same type and level, it would therefore be necessary to standardize the school records, in format and methods.

Some immediate advantages of these measures may include firstly that all schools will thus be encouraged or obliged to keep systematic and uniform records, which will facilitate tremendously the collation of data at the local education office level on the one hand, and local-area educational planning and management on the other. Such standard school records may also enable the aggregation and storage of data at the local education office to a level of detail not attainable before.

An even more important consequence of the general practice of uniform school records is that the methods, techniques and quality of school management can also be improved due to better and more complete information support. These improved methods and techniques can then be installed in all the school management systems through the provision of operational manuals and the organization of systematic training.

Standardization of schools records keeping would directly contribute to the quality and regularity of school reporting, where all schools will deal with the required aspects in a uniform manner, thus facilitating tremendously the evaluation of performance and identification of problems, shortcomings and bottlenecks.

The building of EMIS at the school level therefore involves the establishment of systematic school record keeping by using standard record instruments and following standard procedures and methods. The same applies to non-formal educational activities and programmes in literacy work, adult education, and technical/vocational training.

Illustrative list of information to be handled by an EMIS.

1. *Pupils and students*

1.1 *Population*

- 1.1.1 School-age population by sex and by standard age-groups corresponding to various levels of education
- 1.1.2 School absorption capacity
- 1.1.3 Admission requirements (age)
- 1.1.4 Birth rate
- 1.1.5 Population by single years of age (or age-group) and by sex

1.2 *Enrolment by level (and programme for non-formal education)*

- 1.2.1 Enrolment by sex, grade and age
- 1.2.2 Repeaters by grade and by sex
- 1.2.3 Drop-outs by grade and by sex
- 1.2.4 Graduates by sex
- 1.2.5 Transition rate by sex
- 1.2.6 Performance by grade and by sex
- 1.2.7 Scholarships/grants

1.3 *Class organization*

- 1.3.1 Number of class and class-size by grade
- 1.3.2 Classrooms and facilities
- 1.3.3 Teachers
- 1.3.4 Textbooks
- 1.3.5 Teaching material

1.4 *Ancillary services*

- 1.4.1 Student guidance services
- 1.4.2 Libraries
- 1.4.3 Health services
- 1.4.4 Canteen/meal services

- 1.4.5 Transport services
- 1.4.6 Special services (e.g.sports, extra-curricular activities)
- 1.4.7 Student handbooks (Rules and regulations)
- 1.4.8 Parent-teacher organizations
- 1.4.9 Student organizations

2. *Educational personnel*

2.1 *Present staff*

- 2.1.1 Name, address, qualifications, experience, function, subject-specialization, grade, salary scale and special competencies
- 2.1.2 Payroll

2.2 *Recruitment*

- 2.2.1 Vacancies - type, level, location and requirements
- 2.2.2 Applicants - profile in qualification and experience
- 2.2.3 Selection and placement

2.3 *Staff development*

- 2.3.1 Educational staffing structure
- 2.3.2 Professional profile
- 2.3.3 Available competent teachers and other staff
- 2.3.4 Training opportunities, facilities, materials and aids
- 2.3.5 Training needs identification and assessment
- 2.3.6 New and innovative technologies and methods
- 2.3.7 Scholarships, fellowships and grants
- 2.3.8 Seminars, workshops and others

2.4 *Transfer and promotion*

- 2.4.1 New posts and available vacancies
- 2.4.2 Qualification and competency requirements
- 2.4.3 Promotion Plan
- 2.4.4 Performance evaluation system
- 2.4.5 Merit increase programme

2.5 *Staff welfare*

- 2.5.1 Health
- 2.5.2 Housing
- 2.5.3 Transport
- 2.5.4 Food subsidies
- 2.5.5 Education of children
- 2.5.6 Pension
- 2.5.7 Other fringe benefits
- 2.5.8 Recreation
- 2.5.9 Staff organizations

2.6 *Discipline*

- 2.6.1 Service manual
- 2.6.2 Rules and regulations
- 2.6.3 Administrative procedures
- 2.6.4 Professionalization of teaching profession
- 2.6.5 Disciplinary measures taken

3. *Physical facilities*

3.1 *Existing facilities*

- 3.1.1 Buildings by type, area, permanence and condition
- 3.1.2 Furniture by type, materials and condition
- 3.1.3 Playground and school farm
- 3.1.4 Equipment - electricity, telephone, radio, television, tape recorder, duplicator, etc.

3.2 *Acquisition*

- 3.2.1 New facilities under construction and purchase
- 3.2.2 Needs identification and assessment
- 3.2.3 Use and performance indicators
- 3.2.4 Resource allocation and scheduling

3.3 *Maintenance*

- 3.3.1 Maintenance needs assessment
- 3.3.2 Maintenance plan
- 3.3.3 Resource allocation and scheduling

3.4 *Financial requirement*

- 3.4.1 Expenditure for school site acquisitions
- 3.4.2 Expenditure for construction and purchase
- 3.4.3 Expenditure for repair, rehabilitation, maintenance and improvement
- 3.4.4 Inventory of property and fixtures
- 3.4.5 Equipment outlay

4. *Finance*

4.1 *Planning*

- 4.1.1 Estimation of personnel costs
- 4.1.2 Estimation for operations
- 4.1.3 Estimation of capital outlay
- 4.1.4 Estimation of special projects
- 4.1.5 Expenditure projections

4.2 *Budgeting*

- 4.2.1 Budget by school
- 4.2.2 Budget for administration

4.3 *Resource allocation*

- 4.3.1 Allocation from national funds
- 4.3.2 Allocation from local funds
- 4.3.3 Allocation from foreign loans
- 4.3.4 Allocation from other funds

4.4 *Costing*

- 4.4.1 Personnel
- 4.4.2 Operation
- 4.4.3 Capital outlay

4.4.4 Special projects

4.5 *Expenditure control*

4.5.1 Auditing rules

4.5.2 Accounting rules

4.5.3 Trial balances

4.5.4 Others

4.6 *Financial record*

4.6.1 Monthly financial report

4.6.2 Quarterly financial report

4.6.3 Semi-annual financial report

4.6.4 Annual financial report

5. *Legislation, organization and administration*

5.1 *Legislation, rules and procedures*

5.1.1 Laws, decrees and administrative circulars

5.1.2 Administrative rules and procedures

5.1.3 Ministerial memoranda, orders, circulars and bulletins

5.1.4 Provincial education departments memoranda, orders, bulletins and letters

5.2 *Organization*

5.2.1 Ministry of Education

5.2.2 Provincial Education Departments

5.2.3 County Education Offices

5.2.4 Township Education Offices

5.2.5 Village Education Offices

5.2.6 Schools

5.3 *Control*

5.3.1 Personnel

5.3.2 Physical facilities

5.3.3 Finance

5.4 *Evaluation*

- 5.4.1 Records
- 5.4.2 Reports
- 5.4.3 Accountability

6. *Curriculum*

6.1 *Development*

- 6.1.1 Curriculum development centres, committees and individuals
- 6.1.2 Textbooks by type, level, grade and circulation
- 6.1.3 Teaching aids, materials, guides and manuals by type and circulation
- 6.1.4 Audiovisual materials by type and circulation

6.2 *Implementation*

- 6.2.1 Curricular organization by level
- 6.2.2 Research/ innovations/ experimentation
- 6.2.3 Implementation task forces and committees
- 6.2.4 Co-curricular activities

6.3 *Evaluation*

- 6.3.1 Diagnostic test
- 6.3.2 Inventory
- 6.3.3 Achievement test by subject area
- 6.3.4 Aptitude test
- 6.3.5 Attitude test
- 6.3.6 Mental ability and personality test

7. *Non-formal education and community extension services*

7.1 *Non-formal education*

- 7.1.1 Literacy and post-literacy programmes
- 7.1.2 Adult education programmes
- 7.1.3 Non-formal vocational/ technical training courses
- 7.1.4 Distance learning programmes
- 7.1.5 Other non-formal education and training programmes

7.2 *Other community extension services*

- 7.2.1 Education-and-work programmes
- 7.2.2 Research and industries/ agriculture/ services
- 7.2.3 Population education
- 7.2.4 Environmental education
- 7.2.5 Sports
- 7.2.6 Cultural activities
- 7.2.7 Other community services

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